Gannon University
Graduate Catalog
2022 – 2023

Since 1964 Gannon has provided graduate-level course work for the Erie community, the tri-state region, and beyond. We pride ourselves on the resulting professional accomplishments of our 10,214 master's degree and 415 doctoral alumni, included among them are presidents of over 70 organizations, vice presidents, controllers, executive directors, officers, principals, superintendents, and upper-level managers in 350 organizations worldwide. Many of our graduate school alumni have received the Ph.D. degree.

Our urban location provides both support to the regional professional communities and a significant source of hands-on experience for graduate studies. Over the years Gannon students have had many enriching opportunities to do projects, consult, complete internships, and otherwise involve themselves in the business, health care, human service, educational, and government communities at our doorstep. Additionally, representatives of these professions visit the Gannon campus regularly to supplement classroom theory via guest lectures, seminars, workshops, and adjunct teaching.

Office of Graduate Admissions – Erie Campus
Courthouse Commons
109 University Square
Erie, PA 16541-0001

Office of Graduate Admissions – Ruskin Campus
105 Commercial Center Drive
Ruskin, FL 33573

Phone (814) 871-7474 or
Toll Free 1-800-GANNON-U
FAX (814) 871-5827
E-mail: graduate@gannon.edu

University Mission Statement

Gannon is a Catholic, Diocesan university dedicated to excellence in teaching, scholarship and service. Our faculty and staff prepare students to be global citizens through programs grounded in the liberal arts and sciences and professional specializations. Inspired by the Catholic Intellectual Tradition, we offer a comprehensive, values-centered learning experience that emphasizes faith, leadership, inclusiveness and social responsibility.

Academic Accreditation

Based on accepted qualitative and quantitative standards of excellence for evaluating the quality of education offered at the institution. Evaluation and subsequent accreditation include such areas as the educational objectives and achievements, academic programs, admissions practices, student personnel and welfare services, institutional study, training and experience of instructional staff, financial stability, and laboratory and library resources.

Gannon University Graduate Programs are accredited by:

The Middle States Commission on Higher Education
3624 Market Street, Philadelphia, PA 19104
(267)-284-5000, FAX (215) 662–5501, www.msche.org
The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

Pennsylvania Department of Education
333 Market Street, Harrisburg, PA 17126-0333
(717) 787-5041 FAX (717) 783-0583

Accreditation Council for Business Schools and Programs
11520 West 119th St., Overland Park, KS 66211
(913) 339-9356, FAX (913) 339-6226, www.acbsp.org

Accreditation Council for Occupational Therapy Education
6116 Executive Boulevard, Suite 200, North Bethesda, Maryland 20852-4929
(301) 652-6611, www.acoteonline.org

Accreditation Review Commission on Education for the Physician Assistant, Inc.
12000 Findley Road, Suite 275, Johns Creek, GA 30097
(770) 476-1224, FAX (770) 476-1738, www.arc-pa.org

Commission on Accreditation of Allied Health Education Programs
9355 113th Street N, #7709, Seminole, FL 33775
(727) 210-2350, FAX (727) 210-2354, www.caahep.org

Commission on Accreditation of Athletic Training Education
2001 K Street NW, 3rd Floor North, Washington, DC 20006
(512) 733-9700, www.caate.net

Commission on Accreditation in Physical Therapy Education
3030 Potomac Avenue, Suite 100, Alexandria, VA 22305
(703) 684-2782 FAX (703) 684-7343, www.capteonline.org

Commission on Collegiate Nursing Education
655 K Street, NW Suite 750, Washington, DC 20001
(202) 887-6791, FAX (202) 887-8476, www.aacnnursing.org/CCNE

Committee on Accreditation for the Exercise Sciences
401 W. Michigan Street, Indianapolis, IN 46202
(317)777-1135, FAX (317)634-7817, www.coaes.org

Council for Accreditation of Counseling and Related Educational Programs
1001 North Fairfax Street, Suite 510, Alexandria, VA 22314
(703) 535-5990, FAX (703) 739-6209, www.cacrep.org

Council on Academic Accreditation in Audiology and Speech-Language Pathology (Ruskin)
200 Research Blvd., #310, Rockville, MD 20850
(800) 498-2071, www.caa.asha.org

Council on Accreditation of Nurse Anesthesia Educational Programs
222 South Prospect Avenue, Suite 304, Park Ridge, IL 60068-4010
(847) 692-7050, FAX (847) 692-7137, www.coacrna.org

Gannon University holds membership in:

American Association of Colleges of Nursing
655 K Street NW, Suite 750, Washington, DC 20001
(202) 463-6930, FAX (202) 785-8320, www.aacnnursing.org

American Association of Colleges for Teacher Education
1307 New York Avenue NW, Suite 300, Washington, DC 20005-4701
(202) 293-2450, FAX (202) 457-8095, www.AACTE.org

American Assembly of Collegiate Schools of Business
600 Emerson Road, Suite 300, St. Louis, MO 63141-6762
(314) 872-8481, FAX (314) 872-8495

American Council on Education
One Dupont Circle, NW, Suite 800, Washington, DC 20036
(202) 939-9300, FAX (202) 833-4760, www.acenet.edu

Association of Independent Colleges and Universities of Pennsylvania
800 North Third Street, Suite 502, Harrisburg, PA 17102
(717) 232-8649, FAX (717) 231-4053

Association of Schools Advancing Health Professions
112 C Street NW, Suite 200, Washington, DC 20001
(202) 237-6481, www.asahp.org

The Board of Law Examiners of the Commonwealth of Pennsylvania
5035 Ritter Road, Suite 1100, Mechanicsburg, PA 17055
(717) 795-7270

College Entrance Examination Board (The College Board)
45 Columbus Ave, New York, NY 10023-6992
(212) 713-8000

Council of Colleges of Arts and Sciences (c/o The College of William and Mary)
P.O. Box 8795, Williamsburg, VA 23187-8795
(757) 221-1784; FAX (757) 221-1776, www.ccas.net

The Council of Independent Colleges
One Dupont Circle, Suite 320 Washington, DC 20036
(202) 466-7230, www.cic.org

Middle Atlantic Association of Colleges of Business Administration
La Salle University, 1900 W. Olney Avenue, Philadelphia, PA 19141
(215) 951-1040

Pennsylvania Association of Colleges and Teacher Educators
1201 Northwestern Drive, Monroeville, PA 15146
(412) 373-9185

Pennsylvania Association of Colleges and Universities
800 North 3rd Street, Harrisburg, PA 17102
(717) 232-4446 or (717) 232-8639

Pennsylvania Association of Graduate Schools
President, James F. Matta,
Assistant Vice President for Graduate Studies and Research,
Bloomsburg University, 400 E. Second Street, Bloomsburg, PA 17815
(570) 389-4015, jmatta@bloomu.edu

State Education Department of New York
Cultural Education Center, Room 5A-11, Albany, NY 12230
(518) 474-3901, FAX (518) 473-0271, www.nysed.gov/tert/homepage.com

Gannon University is approved by:
State Board of Nursing of the Commonwealth of Pennsylvania
P.O. Box 2649, Harrisburg, PA 17105-2649
(833) 367-2762, FAX (717) 783-0822

Advocate for Campus Accessibility
Lisa Laird is the 504/ADA coordinator supporting students with disabilities who require accommodations with facilities, academics , or services at the University. Students seeking information or assistance in any matter regarding accessibility or accommodations should contact her upon admission to the University: Lisa Laird, Gannon University, 109 University Square, Erie, PA 16541, 814-871-5522,or laird004@gannon.edu.

Gannon University is dedicated to excellence in holistic education. In 1933, Archbishop John Mark Gannon established Cathedral College, a two-year institution for men which by 1941 had evolved into a four-year college, the Gannon School of Arts and Sciences. The name Gannon College was adopted in 1944, and Gannon achieved university status in 1979. Then, in 1989, the delivery of higher education was further enhanced as Villa Maria College, founded in 1925, became part of the University community.

Today, Gannon University is a co-educational institution with 1,245 graduate students among a total student body of 4,343 enrolled full and part-time in a variety of graduate, undergraduate and associate degree programs.

Key to Gannon's mission is the personal and professional development of its students. A range of campus organizations and activities enhance academic interests, as well as foster leadership, volunteerism, and community service. The University community provides numerous opportunities for intellectual, moral, and spiritual growth.

Gannon University Policy of Equal Opportunity
It is the policy of Gannon University to affirmatively implement equal opportunity to all qualified applicants and existing students and employees. In administering its affairs, the University shall not discriminate against any person on any basis prohibited by law. All aspects of employment including recruitment, selection, hiring, training, transfer, promotion, termination, compensation and benefits shall conform to this policy. All aspects of student affairs and education of students including recruitment, admissions, financial aid, placement, access to facilities, student discipline, student life and student employment conform to this policy. Furthermore, Gannon University does not discriminate on the basis of sex in its education programs and activities.

Gannon University will protect the rights of all students and employees to work and study free from harassment, including sexual harassment and/or sexual violence. Inquiries concerning the application of Title IX and other non-discrimination policies are to be referred to the Gannon University Title IX Coordinator, Susan Majocka, Beyer Hall, 109 University Square, Erie, PA 16541-0001; 814-871-7224; kerner005@gannon.edu.

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Graduate Study at Gannon

Gannon first offered graduate course work in 1964 and the first master's degrees were awarded in 1966. From a small beginning with fewer than 50 students enrolled in English and Education master's degree programs, graduate offerings grew dramatically in the late 60's and early 70's with the introduction of Counseling Psychology, Engineering, Public Administration, Nursing, and the tri-state area's first MBA program. Growth and development continued with the addition of a number of certificate programs in the late 70's and 80's. The Ph.D. in Organizational Learning and Leadership was first offered in 2007 and the University announced the addition of the Doctor of Nursing Practice and the MS in Sport and Exercise Science programs in 2012. The Master of Science in Criminalistics launched in 2016 and, in recent years, Gannon has continued to add new graduate programs in targeted areas including Strategic Communication, Healthcare Administration, Information Assurance and Cybersecurity, Anti-Money Laundering, and more.

In the Summer of 2015, Gannon University introduced an additional campus in Ruskin, Florida. The Morosky College of Health Professions and Sciences currently offers the Occupational Therapy Doctorate, Doctor of Physical Therapy, Master of Science in Sport and Exercise Science, Master of Physician Assistant Science, and Master of Science in Speech Language Pathology.

Perhaps the single most distinguishing characteristic of Gannon is that it is a Catholic university. This means that academic focus is placed upon the quality and dignity of human life. We treasure each individual graduate student and strive to provide the highest level of professional and academic training within a context of growth and supportiveness. Graduate students, both full and part-time, are valued members of the University community. They are encouraged to participate in the many cultural, social, recreational, and athletic activities of Gannon.

Statement of Principles of Good Practice
Gannon University subscribes to the National Association for College Admission Counseling's Statement of Principles of Good Practice. Admission policy has been established to protect all students' rights, privileges and privacy, while providing well-qualified students with an opportunity to enroll at the University. Gannon University reserves the right to deny admission to applicants who have a criminal record or other indications that they could harm or impact the wellness of the Gannon Community.

Graduate Studies Mission Statement
The mission of graduate education at Gannon University is to provide distinctive and rigorous programs in diverse disciplines for students who are seeking to: advance their knowledge and attain mastery in their profession; engage with the faculty in the integration of scholarship, research and professional practice; and succeed as critical thinkers and decision makers and as contributing leaders of their professions in a global society.

Graduate Studies Vision Statement
Graduate programs at Gannon University will be recognized for their academic excellence and their innovative pedagogies. Our programs will produce life-long learners who successfully compete in their respective careers, provide ethical leadership, and serve their communities. Graduate education will be acknowledged and supported as central to Gannon's continued growth and innovative, entrepreneurial spirit.

Graduate Studies Learning Outcomes
By graduation, all Gannon University graduate students will have demonstrated:
1. Advanced knowledge and skills appropriate to the discipline.
2. Knowledge or application of ethical standards within the discipline.
3. Professional communication proficiencies and disseminated information appropriate to the discipline.
4. Contributions, such as service, to the profession and/or community.

The University reserves the right to make any changes in the contents of this catalog or in the documented course of study that it deems necessary or desirable. When changes are made they will be communicated to the appropriate students.

Programs of Study

Gannon offers four different levels of graduate programs: (1) Doctoral programs, (2) Master's degrees with concentrations, (3) graduate level certificates and (4) select course work for professional development.

Doctoral Programs

- **Doctor of Nursing Practice (DNP)**
  - Nurse Anesthesia
  - Post-Master's Doctor of Nursing Practice
- **Organizational Learning and Leadership (Ph.D.)**
- **Physical Therapy (DPT)**
- **Post Professional Occupational Therapy (OTD)**

Master's Degree Programs

The following areas of study lead to master's degrees. Concentration areas are listed under degree programs where applicable.

- **Athletic Training (Master of Athletic Training – MAT)**
- **Biomedical Engineering (MSBME)**
- **Business Administration (Master of Business Administration– MBA)**
- **Business Analytics (Master of Business Administration in Business Analytics)**
- **Clinical Mental Health Counseling (Master of Science – MS)**
- **Computer and Information Science (Master of Science – MSCIS)**
  - Data Science
  - Information Technology
  - Software Engineering
- **Criminalistics (Master of Science in Criminalistics – MSC)**
- **Education (Master of Education – MEd)**
  - Curriculum and Instruction
  - Reading
- **Electrical Engineering (Master of Science in Electrical Engineering – MSEE)**
- **Embedded Software Engineering (Master of Science in Embedded Software Engineering – MSES)**
- **Engineering Management (Master of Science in Engineering Management – MSEM)**
- **Environmental Science and Management (Master of Science in Environmental Health and Engineering – MSEH)**
- **Family Nurse Practitioner (Master of Science in Nursing – MSN)**
- **Healthcare Administration (Master of Healthcare Administration – MHA)**
- **Information Assurance and Cybersecurity (MS)**
- **Mechanical Engineering (Master of Science in Mechanical Engineering – MSME)**
- **Occupational Therapy (Master of Science – MS)**
- **Physician Assistant (Master of Physician Assistant Science – MPAS)***
- **Public Administration (Master of Public Administration – MPA)**
- **Sport and Exercise Science (Master of Science – MS)**
- **Strategic Communication (Master of Arts – MA)**

* NOTE: The Physician Assistant program is limited in the number of seats we are able to offer due to limitations set by Gannon's accrediting body. Please contact the Office of Graduate Admissions to inquire about the availability of post-baccalaureate seats.

Graduate Level Certificates and Endorsement

Graduate certificate programs involve prescribed sets of courses and/or projects/internships that are designed to build expertise in a specialized area. The total credit requirements (usually 12 to 18) are substantially fewer than that of a master's degree. Some students pursue graduate certificates in lieu of making a commitment to an entire degree program. Others use certificates to build specializations with master's degree programs, to retool after a master's degree has been earned, or for professional development. Certificate students must apply and be accepted on a non-degree basis. Gannon University offers the following graduate level certificate programs and endorsement program:

Anti-Money Laundering
Autism Spectrum Disorders (ASD) Enrollment
Business Essentials
District-wide Supervisory Certificate: Curriculum and Instruction
English as a Second Language Program Specialist PK-12 Certificate
Family Nurse Practitioner Certificate
Healthcare Business Analytics
Nurse Anesthesia Certificate
Principal PK-12 Certificate
Reading Specialist PK-12 Certificate
Superintendent Letter of Eligibility Certificate

Coursework for Professional Development

As a continuing service to the regional professional community, Gannon University offers qualified students the opportunity to pursue professional development via sequences of graduate course work. Students wishing only to build expertise in areas of interest or to gain new knowledge may apply for non-degree status. However, like certificate students, non-degree students must satisfy graduate level entrance requirements.

Minimum Credit Requirements

The minimum required number of credits is 30 for a Master's degree and 12 for a certificate Most degree and certificate programs, however, have requirements which are in excess of this minimum.

Graduate Student Designations

Each graduate student's status will be determined based upon the specifics of the application decision and the student's individual circumstance.

Degree Status
Students who submit a complete application portfolio and meet the program admission requirements qualify for degree status.

Provisional Status for Degree Seeking Students
There are two general circumstances which lead to this designation:

A. Provisional/Academic
If a student does not meet an admissions criterion (i.e., GPA, test scores, etc.) but shows potential in other areas, the student may be admitted with provisional/academic status. Continued enrollment is contingent upon demonstration of sufficient ability to do graduate work. Generally, to receive degree status, students must achieve a minimum cumulative average of 3.00 in 9-12 credits of graduate work. This is determined by the Program Director.

B. Provisional/Administrative
This status applies to an applicant showing great promise but who has a missing component of information, such as a letter of recommendation or test score. This status allows students an initial semester to complete the admissions portfolio. In general, provisional students may not register for more than one semester however, specific programs may have different limits.

In either case, the responsibility is on the student to petition the Program Director by letter for a change to degree status as soon as the deficit has been alleviated. Generally, credits earned as a provisional student are fully applicable to graduate degrees and certificates.

Non-Degree Status
This designation is reserved for students who are not pursuing a degree at Gannon. There are a variety of common reasons for this status, including students who are pursuing a course or two for professional development, certificate students, students from other graduate schools who are planning to transfer course work back to their own institutions, or students who are attending workshops and institutes which offer graduate credit. In some cases, with the permission of a graduate program director, credits earned as a non-degree student may be applied toward a degree or certificate program at Gannon.

With the exception of students in graduate certificate programs, the non-degree student is limited to nine credits of graduate course work under this status. Only with special permission of the program director and respective Academic Dean may a non-degree student enroll for more than nine credits.

Admission

While the requirements for admission to various programs differ, the general requirements and procedures are listed below. Please refer to the individual program description for specific details.

General Requirements

Applicants for graduate study must hold a bachelor's degree from an appropriately accredited college or university, and demonstrate the motivation, ability, and preparation needed to pursue graduate study successfully. A determination of this capacity will be made by the graduate program director and/or the respective Academic Dean, based upon records of undergraduate achievement, prior graduate work (if any), scores on required standardized tests (GRE, GMAT, etc.), letters of recommendation, and other information. Official transcripts and test scores must be sent directly from the appropriate institution to the Office of Graduate Admissions of Gannon University.

Process

Prospective applicants must submit a completed application for graduate study. Applicants should direct all application materials and questions regarding the process of admission to the:

Office of Graduate Admissions
109 University Square • Erie, PA 16541-0001
Phone (814) 871-7474 • Toll Free 800-GANNON-U
Email: graduate@gannon.edu

Admissions representatives assist prospective students with any questions regarding program admission requirements or the decision process.

Programs may require students to apply through a Centralized Application Service (CAS).

Standardized Admission Tests

Each of the master's degree programs has its own requirements with regard to standardized admission tests. Please refer to the individual program descriptions for the appropriate tests or contact a graduate admissions representative. An applicant who already holds a graduate degree is not required to take an exam when applying to a Gannon master's degree program. The results of standardized tests should be sent directly to the above office from the test administrator.

Global/International Students

Gannon has a long tradition of welcoming students and scholars from around the world. The presence of global/international students and scholars cultivates a richly diverse learning environment through the varied global perspectives they bring both inside and outside of the classroom. Intercultural interactions provide Gannon students a wide range of opportunities to expand their global perspectives and develop higher level intercultural communication skills.

Admission Requirements

Application

Global/International students should apply as soon as possible for visa-issuance purposes.

Gannon recommends applying by July 1st for the fall intake (August) and November 15th for the spring intake (January) to ensure adequate time for processing.

Global/International students need to submit the following:

1. International Admission Application.
2. Transcripts and final exam results: official, notarized (attested) English translations; undergraduate and graduate-level transcripts need to indicate degrees conferred
   Graduate: all undergraduate and graduate level transcripts showing degrees conferred
3. Three letters of recommendation
4. Affidavit of Support Form along with a bank statement showing appropriate funds in U.S. Dollars. Gannon University is required by United States immigration law to verify financial resources available for a student's educational and related expenses.
5. Additional document(s), statement of purpose, curriculum vitae and standardized test – if applicable. Refer to academic program for specific admission requirements.
6. Evidence of English Language Proficiency
   a. Native of an English Speaking Country
   b. Completion of a four-year degree from an accredited U.S. university within the past year or similar university in another English Speaking country
   c. TOEFL 79 iBT
   d. The following majors require a 6.5 IELTS score or its equivalent: Clinical Mental Health Counseling, Strategic Communication, Environmental Health and Engineering, Sport and Exercise Science, Athletic Training, Occupational Therapy, Physical Therapy. All other majors require a 6.0 IELTS score or its equivalent.
   e. English3 66
   f. PTE (Pearson Test of English) 53
   g. Duolingo 100 for most programs; see program for details
   h. iTEP 3.8
   i. ELS Language Center, Level 112
   j. Completion of Gannon University's English as a Second Language Program

* see Office of Global Admission website for other accepted evidence of proficiency.

NOTE: Applicants who meet the academic requirements for a specific program, but who do not satisfy the English-language requirement, may be offered admission to the university dependent on program requirements. These students can meet the language proficiency by enrolling and completing Gannon's English as a Second Language (ESL) Program.

Policy on ESL Testing and Placement

Students who do not meet the English language proficiency requirements as defined above must take the ESL placement test upon arrival to campus. Depending on the results of the test, students will either be exempt from ESL or placed in the appropriate level as determined by the placement test.

Financial Requirements

Students must submit financial documents in conjunction with the Affidavit of Support Form as part of the requirements for issuing the Form I-20. Per United States immigration law, the Affidavit of Support Form and supporting documentation must show that all educational expenses, including tuition, room and board, books and health insurance, can be fully met by the student for the first academic year.

Once a student has been admitted and the Affidavit of Support Form has been approved, the student will be issued the Form I-20 as a basis for making an appointment at the US Consulate. Students must notify the Office of Global Support and Student Engagement of their planned date of arrival after receiving their visa. All students are required to fill out the Attendance Confirmation Form located on our website at www.gannon.edu/ConfirmAttendance.

Note: Global and international students who are required to pay a non-refundable deposit to receive or keep valid their Form I-20 are eligible to request a refund in excess of the required deposit and in accordance with the refund schedule as posted. The non-refundable deposit is exempt from the refund policy.

Information regarding graduate assistantships should be referred to the respective academic department for one's program of study.

Refer to the Tuition and Fees information provided in this catalog or on Gannon's website.

Office of Global Support and Student Engagement

The Office of Global Support and Student Engagement (OGSSE) strives to provide an environment, services and programs to ensure that our global/international students will thrive and succeed at Gannon. The OGSSE works closely with departments across campus and with the broader local community to design opportunities for global/international students to establish friendships and meaningful connections with their classmates, professors, and other members of their new community in the U.S. Examples of such programs and resources include:

- Pre-arrival correspondence and registration information on and Global Student Orientation
- Social Media and the OGSSE Website
- Cultural Programming
- Workshops on global/international student topics
- Advocacy, Referral, and Global/International Student and Family Resources
- Student Organization Support and Advising

The Office of Global Support and Student Engagement is responsible for student and University compliance with U.S. immigration regulations, as well as reporting required data to the Department of Homeland Security (DHS) through the Student and Exchange Visitor Information System (SEVIS). To understand and maintain federal regulations governing their immigration status and attendance in school, **all new students coming to Gannon University on F-1 and J-1 visas are required to attend Global Student Orientation.**

Enrollment Requirements: Global/International students are required to enroll each semester in a full course of study. For graduate students, 9 credits per semester is considered full time. In the event a student needs to drop below a full course load, s/he must contact the Office of Global Support and Student Engagement for assistance in following SEVIS processes to maintain status.

Employment Benefits: F-1 and J-1 students are eligible to work on-campus up to 20 hours per week while school is in session, and full time (40 hours / week) during break periods, including summer. In general, F-1 students are not eligible for off-campus work authorization except in extreme circumstances.

CPT or Curricular Practical Training is the work authorization available to F-1 students to work off-campus in paid or unpaid positions that are an integral part of students' academic program (such as internships and co-ops). Proper paperwork must be filed with the OGSSE to authorize CPT as it must be documented on a student's I-20. Current students in active status are eligible for CPT after one academic year (two semesters) of full-time study, not including summer sessions.

OPT or Optional Practical Training is off-campus work authorization provided to F-1 students following graduation as an opportunity for employment directly related to students' field of study for up to 12 months (36 months if in a STEM-eligible program). The OGSSE assists students in applying to the United States Customs and Immigration Service (USCIS) for OPT authorization to work in the US.

NOTE: Spouses and dependents of F-1 students (F-2 visa holders) are not legally allowed to work in the U.S.

Health Insurance: Gannon University has a policy that mandates that all enrolled global/international students must have health insurance coverage. Students who do not show proof of health insurance that is operational in the United States will be subscribed to Gannon's contracted health insurance provider and charged accordingly. Students who do not want to be charged for health insurance must demonstrate coverage through proper documentation before the deadline set by the OGSSE.

Office of English Language and Global Training

The Office of English Language and Global Training offers English as a Second Language (ESL), short-term programs, and workshops on language and culture. The staff guides global/international students in their cultural adjustment to the United States by creating and supporting a professional and respectful learning environment, where simultaneously develop and strengthen their language ability, academic skills, and intercultural competence.

English as a Second Language Program

The Office of English Language and Global Training prepares non-native speakers to achieve language competency necessary to succeed in English language curricula at the post-secondary level. Through its academic programming, as well as the specialized services it provides to English language learners, this office echoes the University's mission by its commitment to excellence in teaching, scholarship and service, and by preparing its students to become global citizens.

The English as a Second Language Program is designed to meet the needs of students who are accepted to Gannon University and have yet to reach the required English language proficiency. Students who do not meet the required minimum benchmark must enroll in the ESL Program. Students will take a placement exam that will determine their language level. Students may place in one of the six levels: Beginning 1, Beginning 2, Intermediate 1, Intermediate 2, Advanced 1, and Advanced 2.

Each level can be completed in one nine-week session. At each level students take four core courses: reading, writing, grammar, and listening and speaking, as well as special courses tailored to support the needs of the students at a particular level.

The Commission on English Language Program
Accreditation (CEA)
100 North Fairfax Street, Suite 630
Alexandria, VA 22314
703-665-3400 https://cea-accredit.org/

Online Student Services

Online courses at Gannon are designed using the Quality Matters rubric and are typically asynchronous allowing students to work through course content and activities as their schedule allows each week. Gannon's online course format follows weekly course modules aligned to specific weekly learning objectives. While course delivery is asynchronous, there are weekly schedules in each module with deadlines for student discussion activities, assignments and assessments. Some courses may include some synchronous activities like student presentations and group work which utilize Adobe Connect. All online courses are facilitated using Gannon's learning management system which is Blackboard Learn (https://gannon.blackboard.com)

Course design philosophies at Gannon are focused on engaging, student-centered instruction that promotes significant and meaningful interactive learning to meet weekly learning objectives and course outcomes. Gannon's online courses utilize an "Ask the Instructor" discussion board that instructors check on a daily basis for student questions. Additionally, Gannon courses utilize active discussion-based activities to promote learning communities with the close participation of Gannon's faculty.

Finally, each online course includes a course design student survey to inform future iterations of the course making the online instruction stronger as the course matures. These courses are indicated as being offered online in the course description.

Tuition and Fees

2022-2023

Tuition and fees for 2022-2023 are subject to change.

Tuition

College of Humanities, Education and Social Sciences	
Act 48 Courses designated by GUEC – Online	$380/credit
Autism Spectrum Disorders Endorsement	$565/credit
Clinical Mental Health Counseling	$720/credit
Criminalistics – Online	$750/credit
Curriculum and Instruction (M.Ed.) – Online	$565/credit
ESL Program Specialist – Online	$565/credit
Organizational Learning and Leadership (Ph.D.)	$1,145/credit
Principal PreK-12 Certification – Online	$565/credit
Public Administration	$690/credit
Reading Specialist Certification/	
M.Ed. in Reading – Online	$565/credit
Strategic Communication	$900/credit
Superintendent Letter of Eligibility – Online	$565/credit
Supervisor of Curriculum – Online	$565/credit
College of Engineering and Business	
Biomedical Engineering	$1,145/credit
Business Administration (MBA) – Online	$900/credit
Business Analytics (MBA)	$1,030/credit
Business Essentials (GCT) – Online	$900/credit
Computer and Information Science	
Data Science	$1,145/credit
Information Technology	$1,145/credit
Software Engineering	$1,145/credit
Electrical Engineering	$1,145/credit
Embedded Software Engineering	$1,145/credit
Engineering Management	$1,145/credit
Environmental Science and Management	$1,145/credit
Healthcare Administration (MHA)	$900/credit
Healthcare Administration (MHA) – Online	$900/credit
Healthcare Business Analytics (GCT) – Online	$900/credit
Information Assurance and Cybersecurity (MS)	$1,030/credit
Mechanical Engineering	$1,145/credit

Morosky College of Health Professions and Sciences

Athletic Training (MAT)	$690/credit
Doctor of Nursing Practice (DNP) – Online	$815/credit
Family Nurse Practitioner – Online	$815/credit
Family Nurse Practitioner (GCT) – Online	$815/credit
Nurse Anesthesia (DNP)	$1,145/credit
Nurse Anesthesia Certification	$1,145/credit
Occupational Therapy Program – 5th Year	$1,305/credit
Post-Baccalaureate Occupational Therapy Program	$1,305/credit
Post-Professional Occupational Therapy Doctorate – Online	$795/credit
Doctor of Physical Therapy 10+ credits (full-time)	$18,850/semester
Less than 10 credits (part-time)	$10,490/semester
Physician Assistant Program – 5th Year	$1,305/credit
Post-Baccalaureate Physician Assistant Program	$1,305/credit
Sport and Exercise Science	$690/credit

Check, Cashier's Check, or Money Order

- **Cash payments under $1,000**
- **On-Line Payment**
  E-Check and Credit Card payments can be made on Gannon Self Service or at www.gannon.edu/epayment. There is no charge for E-Check transactions. A 2.65% service fee is assessed on debit/credit card transactions. Cards accepted: VISA, MasterCard, Discover and American Express.
- **Semester Payment Plan**
  A Semester Payment Plan is available through Gannon Self Service which enables you to defer up to $2,500 per semester for a $30 processing fee.
- **Company/School District Reimbursement**
  A student who receives 100% reimbursement must make a $100 down payment per term. A student who receives partial reimbursement must pay tuition or fees not covered by their employer. In both cases, payment must be made by the time the semester bill is due. The balance is deferred until 30 days (45 days for school district reimbursement) from the last day of the semester. Any student who fails to make payment in full by this date will be liable for a $50 late fee. Employer or grade delays will have no effect on the final payment date.

The Company/School District Reimbursement Agreement is limited to credit courses. Application fees and late fees cannot be deferred. These fees, if applicable, are payable at the time charged. Books cannot be deferred. It is the student's responsibility to provide the employer with grades and/or other necessary paper work to obtain reimbursement

It is the student's responsibility to make payment of the semester balance to Gannon. Students should also ensure that the conditions of reimbursement are stated clearly and completely on the reimbursement form by their employer.

Indebtedness Policy

A student who is in debt to the University may not register, receive an official transcript, or receive their diploma from the Registrar until the indebtedness has been discharged.

Past Due Accounts

Past due accounts without satisfactory arrangements with Gannon's Cashier Office will be turned over to a collection agency. All reasonable collection costs, including attorney fees and other charges necessary for collection, will be the student's responsibility.

Financial Aid

Gannon operates a full-time office with financial aid representatives who will work with you to facilitate your financial needs. These individuals have access to information relative to loans, grants, and programs at all private and government levels. Graduate students should contact Gannon's Financial Aid Office at the earliest possible time to facilitate processing.

Federal Direct Student Loan (FDSL)

Full and part-time graduate students are eligible to apply for a student loan. Students must file the Free Application for Federal Student Aid (FAFSA) and have a FDSL Master Promissory N on file. FAFSA applications can be completed online at: www.studentaid.gov. The FDSL MPN is available online at: https://studentaid.gov/mpn/.

Students may be eligible to borrow up to $20,500 per academic year, depending on the number of credits for which the student is enrolled. Students must successfully complete 18 credits in order to be eligible for the next increment of $20,500. Please note: Graduate students are not eligible for PHEAA or PELL grants.

Graduate Student Incentive Awards

Students may qualify for a Graduate Student Incentive Award. The awards range from $100 – $525 per semester and are available to graduate students who are receiving no other form of assistance such as scholarship, grant, tuition discount, or company reimbursement (excluding educational loans). To be considered for this award, you must be a US citizen or eligible non-citizen and complete either the FAFSA or a Graduate Student Incentive Award application. Online programs and certain majors are excluded from this scholarship program. Refer to the Office of Graduate Admissions brochure "Financial Facts and Policies for Graduate Students" for additional information or contact the Financial Aid Office. Graduate Student Incentive Award applications are available in the Offices of Graduate Admissions and Financial Aid.

Gannon University Grant for Diocesan Employees

Full-time employees of the Catholic Diocese of Erie or an approved affiliate institution are eligible for the Gannon University Grant for Diocesan Employees. This grant from Gannon University is designed to assist Diocesan employees who are continuing their education at Gannon University on a part-time (fewer than 9 credits per semester) basis. Students are not eligible if they are enrolled in Health Science or a Doctoral programs. For additional information refer to the Office of Graduate Admissions brochure "Financial Facts and Policies for Graduate Students" or contact the Education Office of the Diocese of Erie. Students cannot be receiving any other type of assistance.

Application forms are available in the Office of Graduate Admissions and the Education Office of the Diocese of Erie. The application must be completed by the student and approved by the Vicar of Education each semester and submitted to the Financial Aid Office prior to the due date of the bill. Once the approved application is received, the grant will be applied to the student's bill.

Veteran Affairs Education Benefits

GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official U.S. government website at https://benefits.va.gov/gibill/.

Benefits currently available to the veteran under the GI Bill® can range from $200 a month to tuition and fees. Many opportunities such as tutoring, counseling, and remedial programs can be explained to the veteran by contacting the School Certifying Official in the Financial Aid Office.

Pennsylvania veterans are offered maximum state grant awards. Federal grants and loans are additional sources of financial aid to the veteran.

Additionally, the School Certifying Official may also provide a referral service to veterans for federal, state, and county services which are not a part of any veteran's program but are available to the veteran.

Gannon University will take veteran status into consideration in making decisions regarding admission. Up to 6 credits of Military Science can be awarded to the student for his or her military training. Additionally, many schools previously attended and training received while in the service allow for the granting of credit for corresponding university courses.

Policy on VA Tuition and Fees Payment

In accordance with Title 38 US Code 3679 subsection (e), this school adopts the following additional provisions for any students using U.S. Department of Veterans Affairs (VA) Post 9/11 G.I. Bill® (Ch. 33) or Vocational Rehabilitation and Employment (Ch. 31) benefits, while payment to the institution is pending from the VA. This school will not:

- Prevent the student's enrollment;
- Assess a late penalty fee to the student;
- Require the student to secure alternative or additional funding;
- Deny the student access to any resources (access to classes, libraries, or other institutional facilities) available to other students who have satisfied their tuition and fee bills to the institution.

However, to qualify for this provision, such students may be required to:

- Produce the VA Certificate of Eligibility (COE) by the first day of class;
- Provide a written request to be certified;
- Provide additional information needed to properly certify the enrollment as described in other institutional policies

Career Exploration and Development

Located in the Student Success Center, the Career Exploration and Development team can be a resource for graduate students. The staff interacts with students and graduates from all academic disciplines and supports individuals interested in learning about the world of work and exploring possible destinations. Students are encouraged to authenticate their job seeker accounts on Gannon's online career portal, Handshake, and pursue the employment and experiential learning opportunities that are posted on a continual basis. One-on-one career advising is also available and there are a variety of initiatives throughout the academic year in which graduate students can engage. Email us at career@gannon.edu.

Assistantships

Graduate assistantship positions may be available to a limited number of enrolled students in specific academic programs. This information is available from each program, including when applications are accepted and the details of the hiring process. These positions are 10 hours per week.

Advising

The essence of a quality graduate experience, regardless of the program, is academic advising. Each program has its own unique system for delivering information and monitoring the progress of its graduate students; thus it is essential that each graduate student contact the director of his or her program to ask for direction. This advice is most important at the onset of the program to avoid scheduling conflicts and problems with course sequencing, and to assure that the steps required to complete the program are understood.

Scheduling

We make every effort to create schedules which provide convenience and ease for graduate students. Since many students work full or part-time, some graduate courses are scheduled in the evenings, on weekends, or online. The fall academic semester begins in August and the spring semester begins in January. In addition, there are a variety of summer offerings generally designed to meet the needs of students in specific programs.

Class Attendance

Attendance at all classes and laboratory sessions is expected of all students and all courses are conducted with this understanding. A student's grades are based upon the general quality of work performed in each course and by such factors as prompt completion of all assignments, papers, and readings, by presence for all examinations, and by participation in class discussion. Ultimately, it is the responsibility of each faculty member to set reasonable attendance policies appropriate to individual courses and to publish those policies on course syllabi. When so indicated on the course syllabus, class attendance may directly influence final grades in a course.

When taking an online course, the instructor may not have a fixed weekly meeting time, but consistent attendance is still expected. The following actions demonstrate attendance:

1. Logging into the course and participating in the first introductory activity.
2. Frequently and regularly accessing course instructional materials each week over the entire term.
3. Timely submission of assignments.
4. Participating in scheduled weekly course activities.

Grading System

The work of all graduate students is evaluated and then reported in terms of the following grades:

Grade	Grade Points Per Credit Hour
A+	4.0
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
F (Failure)	0
I (Incomplete)	0
X (Withdrawal)	0
P (Pass)	0
AU (Audit)	0

A program may require students receiving a grade below B- in a specific course to repeat that course. A program may limit a student to two grades below B-. No student may graduate with a GPA below 3.0. There is no pass/fail election.

Grade Change

A grade change can only be initiated by the faculty member who gave the grade. Students who feel there has been an error in grading, or who wish to challenge a grade, should contact their professor.

Grade Point Average Computation

Computation of Grade Point Average for a semester or cumulatively is accomplished by dividing total grade points earned by the total semester hours for courses where a letter grade between A+ and F is received. In some circumstances, certain courses not appropriate for a program (e.g. when a student changes programs) may be excluded from the computation of the GPA in the program. The grade of "A+" carries the same GPA weight as an A, but represents academic work of extraordinary distinction.

Incomplete Grades

Incomplete grades may be assigned at the discretion of the faculty member in cases of serious need. Students may request "I" grades, but the decision to grant this concession will be made by the faculty member.

Students who receive an "I" grade have until the conclusion of the next regular (not summer) academic semester to complete their work, submit it, and have the "I" grade changed to a regular letter grade. Incomplete grades which are not finished within this time period will be changed to the grade of "F", unless an extension is petitioned and granted by the appropriate faculty member. Exceptions on extensions may be made in cases of the thesis or research project. International students, in proper F-1 or J-1 status, are advised that receipt of an "I" grade may impact their student visa status. The implications of an "I" grade should be discussed with the Office of Global Support and Student Engagement before an international student requests an "I" grade from his instructor. The Office of Global Support and Student Engagement should be contacted for this support and guidance.

Thesis or Research Project

For thesis and research projects, students should refer to the program's guidelines for advice and direction.

Comprehensive Examination

Many graduate programs require that a student achieve a satisfactory rating in a comprehensive examination. The comprehensive examination is ordinarily written but, at the option of departmental faculty, an oral examination may be required in addition to or in lieu of the written exam. The comprehensive exam is an evaluation of the student's ability to integrate the content of the program's courses and research. Comprehensive examinations are administered on a date that shall be arranged by the individual program director. A student who fails the comprehensive may petition for permission to retake the examination during the next scheduled period. Graduate students are eligible to take the comprehensive examination two times only. A student who fails the comprehensive examination a second time is subject to dismissal.

Statute of Limitations

University policy requires that students must complete a Master's degree program within six years of matriculating into the program of study. Individual programs may establish a shorter statute of limitations. Consult the program director for exceptions.

University policy requires that students must complete a doctoral degree program within seven years of matriculating into the program of study. Individual programs may establish a shorter statute of limitations. Consult the program director for exceptions.

Exceptions can be granted only by the program director and the Academic Dean. The statutes of limitations are not extended due to interruption of study or medical leave.

Dismissal

Students may be dismissed from Graduate Studies for academic and/or professional reasons.

Academic: All students whose GPA falls below 3.0 are subject to review each semester by their program director and their Academic Dean. Separation from the University is the responsibility of the appropriate Academic Dean in consultation with the program director.

Professional: All students whose professional behavior in the classroom or in clinical situations falls below professional standards will be subject to dismissal from the program.

Appeal of dismissal action may be made to the Academic Dean. Reinstatement to graduate studies at Gannon is possible only with written permission of the Academic Dean.

Academic Probation and Separation Policy

Academic Probation is a serious warning that the student has failed to meet the University's minimum academic standards. Students are expected to work well above the minimum, both for their individual benefit and for the good of the entire academic community. In fact, students are expected to achieve the highest quality of academic work of which they are capable.

Probationary status is a conditional permission for a student to continue studying at the University until he or she regains good academic standing or is separated from the University for having failed to regain good standing. The Academic Probation and Separation Policy is as follows:

Graduate Student Academic Action for a cumulative grade point average below 3.0 will be based upon the following guidelines:

1. Graduate students who have attempted fewer than 9 credits at Gannon University will receive a letter of warning.
2. Graduate students who receive a provisional academic admission and have attempted 9 credits or more at Gannon University will be dismissed.
3. Graduate students who received a regular admission and attempted 9 credits or more but fewer than 24 credits at Gannon University will be placed on academic probation. Graduate students who fail to raise their cumulative grade point average to a 3.0 or above after attempting 9 additional credits will be dismissed.
4. Notwithstanding the prior guidelines, graduate students who have attempted 9 credits or more at Gannon University whose cumulative grade point average is less than 2.3 will be dismissed.
5. Graduate students who have attempted 24 credits or more at Gannon University will be subject to dismissal.

None of these guidelines will supersede individual program requirements that create a higher expectation.

Appropriate College Deans will notify students who have been placed on academic probation. These students will be expected to engage in academic advisement program and concentrate their energies on their studies so that they can bring their work up to the required standard.

Except with the written permission of both the Vice-President for Academic Affairs and the Dean of Student Development, students on probation may not hold office in any University organization, participate in any intercollegiate events or programs, or otherwise represent the University lest they further jeopardize their academic standing.

Students who are separated from the University may not enroll in any University credit course for one full year. Applications for readmission will not be reconsidered until the expiration of one year. Readmission is not a right. The Admissions Committee will take favorable action only when it is satisfied that the factors which led to the failure have been rectified. It is the student's responsibility to demonstrate that he or she has a reasonable prospect for academic success at Gannon. Any student readmitted will be on probation and assigned to special advisement program for the first semester following his or her return. If the student is separated a second time, he or she will not be readmitted.

Students who are separated may appeal that separation to their College Dean. Such an appeal would need to cite extraordinary circumstances that adversely affected academic performance. The College Dean will review all such appeals.

Transfer of Credits

Transfer credits from other institutions are accepted at the discretion of program directors. Generally, a maximum of six credits from an accredited university may be accepted in transfer for courses in which a student received at least a grade of "B" (3.0).

Changing Graduate Programs

Graduate students who are enrolled in one program may seek to switch into another graduate program at Gannon. The decision to accept such transfers is at the discretion of the new program director and, for students whose cumulative grade point average is below 3.0, the respective Academic Dean.

Students who change programs are required to meet with the new program director and have a new program plan developed. While all courses taken will remain on a single graduate transcript, it will be the prerogative of the new director to select courses from those previously completed to become part of the new program requirements.

For purposes of the Academic Program GPA computation, the new program director will compute a grade point average on the basis of the courses which are required for that particular program. At the time that the new program director interviews a student, a letter identifying the courses factored into the GPA is to be shared with the student and placed in the student's graduate file.

Concurrent Graduate Degrees

If accepted into two graduate programs of study at the same time, students may work towards graduate degrees concurrently. To be eligible for simultaneous enrollment in more than one graduate program, students must complete a minimum of 9 credit hours in the first degree program and be in good academic standing *(3.0 or greater cumulative GPA)*. To add a second program of study, students must complete and obtain all required signatures on the "Add a Second Degree" form and the "Second Degree Program Plan", which will determine eligibility for entrance into an additional program and the course of study required to earn each graduate degree. A maximum of twelve credits within the second degree can be part of the first degree. Students who have not been accepted into an additional graduate degree program by the deadline for application for graduation from the first degree program are not considered concurrent, and should refer to the section regarding Second Master's Degree to consider seeking out additional graduate level degrees at Gannon. Since program entry requirements into a second graduate degree program may limit the number of credits that can be utilized to satisfy degree requirement taken prior to entrance into the program, students are encouraged to apply early into additional graduate programs that are desired to be completed concurrently with another degree. In CEB, graduate credits can be double counted once.

Second Master's Degree

An increasing number of students are expressing interest in earning a second Gannon master's degree. In cases where (1) the first master's degree has been earned recently, (2) select course work from the first degree would normally be part of the second degree, and (3) the graduate program director judges the application of these credits to be appropriate, up to twelve credits of upper (600 or 700) level course work within the second master's degree level course work may be accepted in transfer from the first degree.

Course applicability would require that the earlier course work, rather than the degree itself, be recent (no more than seven years old) and judged by the particular graduate program director to be an appropriate substitution for course work within the second master's degree.

Interruption of Study

For Masters students

It is expected that degree-seeking students will make steady and continued progress towards completion of the program. However, students occasionally must interrupt their studies to take a semester (or more) off due to personal or professional needs. Each program handles this situation differently, and the student should contact the program director as needed. Forms for documenting the leave of absence or withdrawal from the University are available in the Office of the respective Academic Dean. However, if a student has been off for two years or longer, that student must re-apply for admission to the Office of Graduate Admissions.

For Doctoral Students

Doctoral students who need to interrupt their program of study for personal or professional reasons must complete a leave of absence form and have it signed by their program director or department chair. Unless excused by an official leave of absence (which in no case may exceed one year throughout the student's degree program), all doctoral students are required to be continuously enrolled and must pay tuition and fees in order to remain in the program. Criteria for what constitutes continuous enrollment varies by program, as specified in the program listings in this catalog. If a student fails to obtain a Leave of Absence or maintain continuous enrollment in their program of study, he or she is required to apply for readmission and must be in good financial standing with the University before readmission is granted. Under no circumstances may a student utilize a leave of absence to pursue courses in another graduate program at Gannon University.

For International Students

In order to fulfill academic attendance requirements imposed by the Department of Homeland Security (DHS), international students, in F-1 or J-1 nonimmigrant status, are required to complete an academic year (two consecutive semesters) before taking a break in coursework. If so desired, F-1 or J-1 international students may enroll continuously without taking advantage of the break period earned after two consecutive semesters of attendance. Those students seeking a break should always consult with the Office of Global Support and Student Engagement (OGSSE) so that the authorized break is approved and properly reported to DHS. If an international student interrupts study during the required two consecutive semesters, without proper authorization from the OGSSE, they will risk a serious immigration violation, requiring either an application to DHS for reinstatement to student status or departure and re-entry to the United States. Depending on the timing of a departure from the United States, re-entry into the United States to resume studies may require an application for readmission submitted to the Office of Global Admissions and Outreach.

Repeat Courses

A student may repeat a course. The student is required to take the course at Gannon and submit written notice of a repeated course to the Registrar's Office if he or she wishes to have the repeat noted on the transcript. Forms are available in the Registrar's Office. When a student elects to repeat a course, the letter "R" will be placed in front of the original grade and the original grade will not be calculated in the grade point average (GPA). Graduate students may repeat only 6 credit hours of coursework under this policy unless otherwise indicated in their program. A non-scheduled course cannot be used to repeat a failed course.

Level 500 Courses

The general rule is that a 500-level course may be taken by undergraduates only in their senior year, either for undergraduate credit (cross-listed as a 400-level course) or for graduate credit with permission of the program director. However, because of the nature of particular integrated programs, 500-level courses may be taken in the junior year; such programmatic exceptions must be approved by the Academic Affairs Committee of the college based upon a recommendation from the Graduate Council.

Auditing

With permission of the faculty member and program director, persons holding bachelor's degrees may audit select course offerings. No graduate credit is awarded to audit students. The conditions of the audit with regard to assignments and examinations will be determined by the faculty member after discussing each situation with the audit student. Auditors must have written approval of the course instructor and are advised that they cannot retroactively upgrade to credit-seeking status after the first two weeks of the regular semester. Additionally, after the first two weeks of the semester, a credit student cannot switch to audit status. Once written instructor permission is obtained, students should contact the Registrar's Office. Records of the course will be noted on a student transcript with a grade of "AU" which carries neither credits nor grade points.

Graduation

Degrees are conferred three times per year: May, August and December. Attendance at Commencement ceremonies, which are held in May and in December, is highly recommended, since graduation is such an important and joyous occasion in the life of academic institutions. A graduate student completing all requirements by the end of the spring semester is eligible to participate in the May ceremony. August graduates who have had their application for graduation approved by their program director and complete their requirements during the summer may participate in the May ceremony. A graduate student is eligible to participate in the December ceremony only after all requirements are completed in December.

Submission of the form, which is available in the offices of the Dean, Registrar, and on GUXpress under student academic forms, will begin an administrative process in which the student's file will be carefully examined by the program director with regard to program requirements for graduation and potential difficulties. An early application will allow for both expeditious processing of the request and time to make up any deficiencies. May and August graduates must apply before November 15. December graduates must apply for graduation before May 31.

Academic Regulations

Academic Integrity Policy

Gannon University considers the maintenance of academic integrity of utmost importance and stresses that students are responsible for thoroughly understanding this code. Absolute integrity is expected of every Gannon student in all academic undertakings; the student must in no way misrepresent his/her work, fraudulently or unfairly advance his/her academic status, or be a party to another student's failure to maintain integrity. The maintenance of an atmosphere of academic honor and the fulfillment of the provisions of this code are the responsibilities of the students and faculty of Gannon University. Therefore, all students and faculty members shall adhere to the basic principles of this Code. Each student will receive the Code of Academic Integrity publication of Gannon University during Freshman Orientation or entrance into the University. Upon review of the publication, the students will be invited to sign a pledge to uphold the Academic Integrity of their work and the work of their peers.

I. Forms of Academic Dishonesty

Plagiarism

Plagiarism is the inclusion of someone else's words, ideas or data as one's own work. When a student submits work for credit that includes the words, ideas or data of others, the source of that information must be acknowledged through complete and accurate documentation, and specific footnote references, and, if verbatim statements are included, through quotation marks as well. By placing his/her name on work submitted for credit, the student certifies the originality of all work not otherwise identified by appropriate acknowledgments.

A student will avoid being charged with plagiarism if there is an acknowledgment of indebtedness.

EXAMPLES (Including but not limited to):

1. Whenever one quotes another person's actual words.
2. Whenever one paraphrases another person's idea, opinion or theory; and
3. Whenever one borrows facts, statistics, or other illustrative materials, unless the information is common knowledge.

Fabrication

Fabrication is the use of invented information or the falsification of research or other findings with the intent to deceive.

EXAMPLES (Including but not limited to):

1. Citing information not taken from the source indicated.
2. Listing sources in a bibliography not used in the academic exercise.
3. Inventing data or source information for research or other academic exercise.
4. Submitting as your own any academic exercise (e.g., written work, documentation or legal document [e.g., patient charts, etc.], painting, sculpture, etc.) prepared totally or in part by another.

5. Taking a test for someone else or permitting someone else to take a test for you.
6. Collaborating with another person or external entity to participate in a discussion activity in an online course.
7. Paying for a Web service to provide answers for online homework and exams.
8. Paying for a Web service to complete an online course.

Cheating

Cheating is an act of deception by which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered.

EXAMPLES (including but not limited to):

1. Copying from another student's test paper and/or other assignments.
2. Actively facilitating another student's copying from one's own test paper/other assignments.
3. Using the course textbook or other materials such as a notebook not authorized for use during a test.
4. Collaborating during a test with any other person by receiving information without authority.
5. Using specifically prepared and unauthorized materials or equipment during a test, e.g. notes, formula lists, notes written on student's clothing, etc.
6. Reporting a clinical visit completed when it was not.
7. Falsifying reports of clinical visits, laboratory exercises, or field experiences.
8. Utilizing cheating devices and any other technology to communicate question content and answers with another person during the administration of an exam.
9. Performing web searches for answers during an online exam.
10. Collaborating with another person or external service to participate in a discussion activity or exam in an online course.

Academic Misconduct

Academic misconduct is the tampering with grades, or taking part in obtaining or distributing any part of a test not administered.

EXAMPLES (including but not limited to):

1. Stealing, buying or otherwise obtaining all or part of an unadministered test.
2. Selling or giving away all or part of an unadministered test including answers to an unadministered test.
3. Bribing any other person to obtain an unadministered test or any information about the test.
4. Entering a building, office file or computer/computer system for the purpose of changing a grade in a grade book, on a test, or on other work for which a grade is given.
5. Changing, altering, or being an accessory to the changing and/or altering of a grade in a grade book, on a test, a "change of grade" form, or other official academic records of the University which relate to grades.
6. Entering a building, office, file, or computer/computer system for the purpose of obtaining an unadministered test.
7. Hiding and/or mutilating library/classroom books and/or equipment.
8. Taking an online exam or quiz early to share question content with other students.
9. Sharing Blackboard or Gannon user ID login information with another person or external entity to submit or share class work.

II. Academic Dishonesty Procedure

1. If an instructor suspects that a student has violated Gannon University's Code of Academic Integrity, he/she will promptly notify the student involved as well as the department chair responsible for the course in question. At no time during the investigation or appeal process are students permitted to withdraw from the course. Within 10 calendar days of the discovery of the alleged violation the instructor will notify the student of the allegation and invite the student to meet to review the matter and to explain the alleged violation. If the student chooses to meet with the instructor to contest the allegation, this meeting shall be scheduled within 7 calendar days of the notification.
2. If the student is cleared of the allegation, the matter will be dropped. If not, then the instructor will inform the Dean's Office of the violation. (The Dean's Office to be notified is the one responsible for the course.) This Office shall then inform the instructor of the student's number of previous violations of the academic integrity policy, if any. In consultation with the department chair the instructor will then impose a sanction upon the student. A letter detailing the sanction will be sent to the student from the instructor and copied to the three College Deans. The letter shall be sent within 10 calendar days from the date the Dean was notified. The student should be aware that admission of guilt does not eliminate or lessen the sanction imposed by the instructor.
3. The student may appeal the instructor's decision to the Dean of the College in which the course resides. Appeals must be made within 7 calendar days of the date of the instructor's decision. Students are expected to continue to attend class during the appeal process.
4. A hearing will be scheduled within 10 calendar days of the Dean receiving the student's appeal. The hearing will include the Dean, the instructor, and the student. The instructor will present pertinent evidence and the student will be given the opportunity to challenge the evidence and present a defense. The student may have one guest present during the hearing, but the guest is not allowed to speak during the hearing unless permitted by the Dean. The Dean will issue a finding based upon the evidence presented. If the Dean determines that insufficient evidence has been presented, the matter will be dropped. If the Dean finds the student in violation of the Code of Academic Integrity, he/she may support the academic sanction originally imposed by the instructor. The Dean also has the power to issue administrative sanctions [i.e., separation from the University]). In considering the penalty to be imposed, the Dean shall take into account the evidence of the appeal proceeding as well as any documented previous infraction(s). A letter detailing the sanction will be sent to the student from the Dean and copied to the other two College Deans.

5. Following the Dean's decision, the student has 7 calendar days to make a final appeal to the Provost with respect to the fairness of the proceedings and/or the appropriateness of the sanction. The Provost will issue a decision within 7 calendar days of the appeal. Students are expected to continue attending class during the appeal process. A final letter will be sent to the student from the Provost and copied to the three College Deans. (NOTE: At the Dean's or Provost's discretion, exceptions to the calendar day requirements can be made for unusual circumstances such as Christmas or summer breaks).
6. Once all appeals are exhausted and a final decision has been made the Dean's office responsible for the course will report the finding of academic dishonesty to each of the other Academic Deans.

Academic Dishonesty Sanctions
Any student found guilty of academic dishonesty will be subject to penalties, which, depending on the gravity of the offense, may include the following:

1. A grade of ''zero'' for the assignment involved (as imposed by the instructor in consultation with the department chair). This penalty will generally be applied in the case of a student's first offense. However, the instructor has the right to impose a more severe penalty based on the circumstances of the offense.
2. Failure of the course (as imposed by the instructor in consultation with the department chair). This penalty will generally be applied in the case of a student's second documented offense. However, the instructor has the right to impose a lesser penalty based on the circumstances of the offense.
3. Subject to review and approval of the Dean responsible for the course, separation from the University. This penalty will generally be applied in the case of a student's third documented offense. However, the Dean has the latitude to apply a lesser penalty depending on the circumstances of the offense.

Review and Expunging of Records

1. Records of completed disciplinary proceedings are destroyed if the student is acquitted.
2. Records of the completed disciplinary proceedings are maintained by the Academic Dean's Office if the student is found guilty. The records are maintained for a period of three years after the student leaves or graduates from the University.

III. Policy on Professional Integrity
All students have an obligation to maintain ethical behavior in relationship to their profession.

Professional Behavior
Those behaviors reflecting status, character, and standards of the given profession.

Ethical Behavior
Those behaviors in accordance with the accepted principles of right and wrong that govern the conduct of a profession.

Any student of Gannon University who engages in unprofessional or unethical conduct is subject to disciplinary action which could include reprimand, probation, separation and expulsion from the University.

IV. Sources
Robert M. Gorell and Charlton Laird, Modern English Handbook, 6th Edition (Englewood Cliffs, NJ, Prentice-Hall, 1976), p. 71.

Campus Rules and Moral Community; In Place of In Loco Parentis by David A. Hoekema. Lanham, Maryland: Rowman & Littlefield Publishers, Inc., 1994.

The format and definitions for the policy on Academic Integrity were adapted from the "Academic Honesty and Dishonesty" brochure produced by the College of Health Sciences, Gannon University, Erie, PA 16541.

The format and definitions for the policy on Academic Integrity were adapted from the School of Hotel Administration, Code of Academic Integrity, and Cornell University.

Student Academic Grievance Policy

Scope and Purpose:

1. This policy addresses academic grievances only. An academic grievance is defined as a complaint brought by a student regarding the University's provision of education and academic (only) services affecting their role as a student. Complaints or grievances connected to assigned grades represent a special case to the grievance process. Grading reflects careful and deliberate assessment of a student's performance by a faculty member. As such, the substance of grading decisions may not be delegated to the grievance process.
   Nevertheless, the University recognizes that in rare cases the process of grading may be subject to error or injustice. Therefore, a student who alleges an error or injustice in the grading process would follow this policy toward resolution.
2. This policy does not apply to student complaints regarding employment or alleged violations of other policies in the student handbook.
3. It is the intent that this policy to provide an efficient process, allowing for both informal and formal resolution of grievances related to academic concerns, complaints or allegations.
4. A student must initiate a grievance as close as possible to the date of the occurrence of the incident and no later than 45 days after the end of the semester in which the alleged grievance occurred. The three summer sessions are considered as one semester.

General Guidelines
Academic grievance procedures should be kept as informal as possible based on principles of mediation and conciliation. Every reasonable effort should be made to resolve any academic grievance at the lowest organizational level possible. In the event that it cannot be resolved informally, the student may seek resolution at the next higher level according to the Formal Resolution procedure.

In the event that the faculty member is no longer employed by the University or is not available within the timelines specified in these general guidelines, the student is to initiate the complaint with the faculty member's immediate supervisor.

The student filing a grievance may have a third-party advisor, such as the University Ombudsperson; attend any meeting at which the student appears. The faculty member involved in the grievance may also have a third-party advisor approved by the University attend any meeting at which the faculty member appears. Legal counsel shall not be used by either party in this grievance process.

Informal Resolution Phase
All academic grievances begin with the informal resolution phase. This first step toward resolution of an academic grievance should begin at the lowest organizational level. The student and the faculty member or University colleague involved should meet to discuss and work toward resolution of the concern. The student should address the grievance to the faculty member or University colleague involved as soon as possible. The student should follow the established protocol regarding the levels of appeal. Formal resolution shall not occur without occurrence of the informal resolution phase.

The student may contact the University Ombudsperson for assistance in initiating the academic grievance process or at any time during the process.

Formal Resolution Phase
The formal resolution phase is used by the student when a satisfactory informal resolution has not occurred.

1. The first step in the formal resolution of an academic grievance is to submit a formal written account of the grievance to the appropriate immediate supervisor. Students may consult the Human Resources office to determine the appropriate supervisor.
   a. The written account must be submitted to the immediate supervisor within two weeks after the last meeting of the informal resolution phase.
   b. The written account should include: identification of the grievant, the respondent, the incident – date, time, place, names of witnesses, the existing rule/policy/established practice claimed to be violated and a brief statement of the desired outcome.
   c. Within three weeks of receipt of all written materials, the appropriate immediate supervisor will fact-find from involved parties and render a decision in writing via registered mail to the parties involved.
2. The second step, if needed, in the formal resolution phase occurs when and if the faculty or student is not satisfied with the immediate supervisor's resolution of the grievance. The student or the faculty member or University colleague involved may then appeal to the next level of the organizational chart by providing a written account of the grievance process and decision.
   a. A written account must be submitted to the next level of the organizational chart within two weeks of receipt of the decision rendered by the immediate supervisor (Step 1).
   b. The written account should include: identification of the grievant, the respondent, the incident – date, time, place, names of witnesses, the existing rule/policy/established practice claimed to be violated, a copy of the decision of the immediate supervisor and a brief statement of the desired outcome.
   c. Within three weeks of receipt of all written materials, the next level of the organizational chart will fact-find from involved parties and render a resolution in writing to the parties involved.
3. The third step, if needed, in the formal resolution process is to appeal to the appropriate College Dean.
   a. The College Dean shall be given a written account of the grievance process to date. This must be submitted within two weeks of receipt of the resolution decision rendered by the next person on the organizational chart (Step 2).
   b. The College Dean shall render a decision in writing to the parties involved within three weeks.
   c. In the event the Dean's resolution of the alleged academic grievance is not satisfactory to either party, the appeal shall be directed to the Provost and Vice President for Student Experience.
4. The fourth step, if needed, in the formal resolution process is to appeal to the Provost and Vice President for Student Experience. This step must be initiated within two weeks of receipt of the College Dean's decision.
   a. The Provost and Vice President for Student Experience shall review the written appeal and response(s) to make a determination whether or not there are sufficient grounds to hold an appeal hearing.
   b. If there are insufficient grounds to hold an appeal hearing, the decision of the College Dean will be upheld.
   c. If there are sufficient grounds to hold an appeal hearing, the Provost and Vice President for Student Experience shall establish an ad hoc grievance appeal panel.
      – A grievance appeal hearing panel would be established on an ad hoc basis and consist of five members for each case. The grievance appeal hearing panel shall be convened by the Provost and Vice President for Student Experience. The panel shall be composed of the Provost and Vice President for Student Experience, or her/his designee (serves as Chair), two faculty representatives chosen from the Faculty Senate, and two student representatives chosen from the Student Government Association. The Provost and Vice President for Student Experience, or her/his designee shall have a vote only in event of a tie.

- The panel members shall conduct the business of the appeal in strict confidence, and in private. The meetings and deliberations of the panel shall be closed.
- The panel members shall have access to the written appeals and each person involved in the grievance.
- The panel decision shall be communicated in writing to the student, faculty member, College Dean and program director.
- The decision of the grievance appeal panel must be submitted in writing by registered mail to both parties. This communication should include an opportunity for a member of the panel or the Provost and Vice President for Student Experience to debrief or otherwise provide further assistance to either party.
- The decision of the grievance appeal panel is final.

Transcript Policy

The student's authorization and written signature are needed to release a transcript. The student can request the transcript in person in the Registrar's office, can write a letter addressed to the Registrar's office, or can FAX the request. Students may also order a transcript online or elect to have transcripts sent electronically via the National Student Clearinghouse. For information on transcript ordering options, visit *www.gannon.edu/transcript*.

Official transcripts must be mailed directly from the Registrar's office to the party requested. All transcripts given directly to the student will be stamped "Issued directly to the student."

Students who need transcripts to submit unopened with applications should request that the transcript be issued to them in a sealed envelope. The transcript is stamped "Issued directly to the student," has the Registrar's stamp and the school seal. The envelope is sealed and has the Registrar's stamp. The student must submit the transcript in the unopened envelope with the application. If the envelope is opened it is no longer valid as an official transcript.

Transcripts are not released for students with financial holds. Partial transcripts are not issued. Each transcript includes the complete academic record at Gannon University and work accepted from other colleges.

Official transcripts of credit earned at other institutions, which have been presented for admission or evaluation of credit and have become a part of the student's permanent record in this office, are not reissued or copies duplicated for distribution, other than internally. Transcripts from other institutions must be official and received by Gannon University directly from the original institution(s). Copies issued to the students with the college seal will not be accepted. Transferred credit is not added to the Gannon University transcript unless it is applicable toward a degree at Gannon University.

Access to Student Records

In accordance with the 1975 Family Educational Rights and Privacy Act, the University has established a policy concerning access to student records. The full policy is available upon request from the Registrar's Office. The following items are included here because of their general interest:

- Probation and suspension letters, and other correspondence are sent directly to all students at their home address.
- Access to student records is permitted only upon receipt of a written release by the student.
- Students may have access to parental financial records submitted in support of financial aid applications.
- With certain exceptions, each student has access to his or her personal and academic records.
- Students may request that directory information not be released to anyone.

Making the Decision to Withdraw

The decision to ***withdraw*** or take a ***temporary withdrawal*** from classes is an important one that may have future academic and financial implications. You must seriously evaluate the short and long-term benefits and consequences of this decision. Choosing to ***withdraw from the university*** may also influence your permanent student record, so it is important that the formal withdrawal process is completed.

We understand that this is a difficult time, and we will assist you through the process.

Be sure to discuss your options with a faculty member +/or the program director/chair so that all available options have been explored, including reducing full-time credit load, reducing credit load to part-time, or changing your major. All students encounter varying levels of stress and some routinely face hardships.

All options should be discussed before a decision is made.

Options and Procedures:

1. **Medical Withdrawal for Mental Health Reason:**
   Academic stress, financial difficulties, problems in life, learning disabilities, and some chronic mental health problems can be managed with ongoing treatment and alone are not considered sufficient justification for a medical withdrawal.

   Requests for **medical withdrawal for mental health reasons** must have supporting documentation from a licensed mental health professional (psychiatrist or psychologist).
   - The student must complete the Medical Withdrawal form. This is available from the student's advisor or in the Student Success Center.

- Written documentation on the mental health's professional letterhead must include diagnosis, date of onset, treatment history, current status, recommendations for treatment, and recommendations for leave of absence from university coursework.
- The student must submit this documentation to the Student Success Center, who will then send it to the Counseling Services office. This documentation will be maintained confidentially in this office.
- Release of Information Authorization Form must also be completed.

Refunds of tuition, fees, room, and board are handled on a case-by-case basis. It is important that the student fully understands the impact of this decision on current and future financial aid, loans, debt, or scholarships. It is the student's responsibility to discuss financial matters with the Cashier's and Financial Aid offices.

A medical withdrawal for a mental health reason is granted with the expectation that the student will seek immediate treatment for the diagnosis that led to the withdrawal.

When a student is granted a medical withdrawal, and upon approval of the Dean of the College, the academic transcript will be marked with "X's" (withdrawal from course grade) for each course attempted.

Re-admission to the program/university is only considered when documentation from a mental health professional supports this action AND includes administrative and academic department review. Additional expectations (interview, behavioral action plan, academic performance, treatment follow-up) may be outlined and re-admission is not guaranteed.

2. **Medical Withdrawal for Physical Health Reason:**
   Requests for **medical withdrawal for physical health** reasons must have supporting documentation from a licensed physician.

   - The student must complete the Medical Withdrawal form. This is available from the advisor or in the Student Success Center.
   - Written documentation on the medical health's professional letterhead must include diagnosis, date of onset, treatment history, current status, recommendations for treatment, and recommendations for leave of absence from university coursework.
   - The student must submit this documentation to the Student Success Center. This documentation will be maintained securely in this office.

Refunds of tuition, fees, room, and board are handled on a case-by-case basis. It is important that the student fully understands the impact of this decision on current and future financial aid, loans, debt, or scholarships. It is the student's responsibility to discuss financial matters with the Cashier's and Financial Aid offices.

A medical withdrawal for a physical health reason is granted with the expectation that the student will seek immediate treatment for the diagnosis that led to the withdrawal.

When a student is granted a medical withdrawal, and upon approval of the Dean of the College, the academic transcript will be marked with "X's" (withdrawal from course grade) for each course attempted.

Re-admission to the program/university is only considered when documentation from a medical health professional supports this action AND includes administrative and academic department review. Additional expectations (interview, physical restrictions, academic performance, treatment follow-up) may be outlined and re-admission is not guaranteed.

3. **Temporary Withdrawal**
   (up to two semesters, based on program):
   Requests for withdrawal for up to two full time semesters of coursework must follow university and program policy and procedures.

   - The student must complete the withdrawal form following discussion with advisor/program director/chair. The form is available from your advisor or in the Student Success Center.
   - The student must submit the form to the program director/chair for signature.
   - Exit interviews and signatures are required with Cashier's office, Financial Aid office and Registrar's office.
   - When applicable, interviews and signatures may be required with Residence Life and Global Support offices.

The university refund policy for tuition, fees, room and board is followed for ALL withdrawals. When students withdraw, they should refer to the Academic Calendar for the last day to withdraw from a course in order to receive withdrawal (X) grades. Withdrawal after this date will result in 'F' grades unless permission is granted by the student's College Dean. Refer to graduate catalog or schedule for refund percentages.

Readmission will be up to the student's specific department/program and will be subject to scheduling and course availability.

4. **Complete Withdrawal from University:**
   Requests for complete withdrawal from the university must follow university and program policy and procedures.

   - The student must complete the withdrawal form following discussion with advisor/program director/chair. The form is available from your advisor or in the Student Success Center.
   - The student must submit the form to the program director/chair for signature.
   - Exit interviews and signatures are required with Cashier's office, Financial Aid office and Registrar's office.
   - When applicable, interviews and signatures may be required with Residence Life and Global Support offices.

The university refund policy for tuition, fees, room and board is followed for ALL withdrawals. When students withdraw, they should refer to the Academic Calendar for the last day to withdraw from a course in order to receive withdrawal (X) grades. Withdrawal after this date will result in 'F' grades unless permission is granted by the student's College Dean. Refer to graduate catalog or schedule for refund percentages.

Readmission to the University and/or specific majors/programs will be subject to admission guidelines and dates for readmission. Consideration will be up to the major/program as well as course availability. Readmission to the University or program is not guaranteed.

International students:
International students transferring, withdrawing, or taking a temporary withdrawal from the university must contact the Office of Global Support and Student Engagement to discuss immigration status and document the process in SEVIS.

The Library

The Msgr. Wilfrid J. Nash Library and Student Learning Commons is a dynamic and engaging learning environment that provides resources, spaces, and support to students of Gannon University to foster learning and academic success.

Nash Library's collections contain over 200,000 book volumes and more than 3,000 audiovisual items. Special collections include the University Archives. The library provides online access to over 45 databases, 80,000 periodicals, and 250,000 ebooks. Other learning resources such as laptops and anatomical models are also available for checkout. Research assistance and information literacy instruction are also integral components of the library's educational mission.

The STEM Center and Writing and Research Center are also located within the building to provide individual and course-integrated group tutoring both online and in-person.

Nash Library and Student Learning Commons opened in spring of 2018 after an extensive modernization project. The building contains spaces for quiet study as well as spaces for collaborative work. There are 49 study rooms in a variety of sizes and configurations designed to accommodate 2 to 10 students. Urban Brew, a new café with its own distinctive menu, is also located in Nash. The library is open 104.5 hours per week during the Fall and Spring semesters.

Student Services

All enrollment services at Gannon University are available to students on campus and online. These enrollment services include course registration, student financial aid, student accounts and billing.

Gannon students are able to purchase books, supplies, and apparel from the Gannon bookstore in Erie at the Palumbo Academic Center located at 824 Peach Street. Students are also able to order books, supplies, and apparel from the Gannon bookstore online. When ordering textbooks on www.gannon.bkstr.com, students can purchase new or used books to be shipped to their residence or for store pickup. Books ordered online may be filled by one of over 900 Follett stores or from the Follett distribution center in Chicago. The bookstore website lists all of Gannon's offerings each semester with corresponding text information.

The mission of Gannon's Information Technology Services (ITS) department is to provide the technology infrastructure and tools to enhance the productivity of students, faculty and staff. Students who have specific needs or problems related to online instruction can contact the ITS Helpdesk Monday – Friday 8:00AM – 9:00PM at (814) 871-7501. This information is provided to the students in the new student orientation, registration information as well as published at the bottom of each Blackboard screen.

Any student who requires instructional accommodations can contact the Student Services Office at (814) 871-7597 (http://www.gannon.edu/depts/nss/accommodations.ihtml). This office is responsible for maintaining disability related documentation, certifying eligibility for receipt of services, determining reasonable accommodations, and ensuring the provision of those services. Gannon's learning management system also includes a prominent link to an accessibility statement that contains helpful information on accessibility resources.

Gannon's Student Success Center provides support services, including academic advising, career counseling, tutoring, programming, and resources for campus and distance students attending the University.

Professionally trained peer consultants who reflect respect for the individual writer staff the Writing Center in the Student Success Center. Consultations promote the recognition of an elemental rhetorical situation, the ability to understand and apply corrections, and the stimulation of critical thinking. The Writing Center consultants have a strong commitment to service and regard language as fundamental to the holistic development of the Gannon University student.

Math and Writing Centers are located at the Palumbo Academic Center, 824 Peach Street. Both Centers offer synchronous tutoring services available online. Tutoring is facilitated over the phone and through the Web. Appointments can be made from any Internet-connected computer or mobile device.

Career Services and academic advising are also available to students on campus and from a distance.

Office of Disability Services

Gannon University, in compliance with the Americans with Disabilities Act (ADA) of 1990, Section 504 of the Rehabilitation Act, and related state and federal legislation, is dedicated to providing responsible advocacy, reasonable accommodations, and support services to students with disabilities who present current and proper documentation of disability to the Office of Disability Services. Accommodations may include, but are not limited to, extended time on exams, reduced distraction environment, notetaking support, and reader/scribe for exams.

Students requesting Gannon housing accommodations, must being the process through the Office of Disability Services. Students may contact the Director of the Office of Disability Services (ODS) by calling 814-871-5522, email ods@gannon.edu, or in person by visiting the ODS located in the Student Success Center in the Palumbo Academic Center (PC 1025).

Academic Computing

Gannon University seeks to provide state-of-the-art computing, networking, and instructional technology to its students, faculty, and staff.

The campus currently offers:

- wireless access to Gannon's network and the Internet in all campus buildings;
- close to 100% of classrooms equipped with instructional technology;
- an online learning management system to provide an enhanced classroom environment;
- general computer labs in Academic buildings throughout campus;
- virtual access to specific lab applications so you can access them on your personal computer or mobile device from anywhere in the world;
- each student is provided 600 print pages a semester to print in computer labs throughout campus;
- MS Office 365 (full versions of Word, Excel, One Note, PowerPoint, etc) is available to students at no charge;
- labs and classrooms with equipment geared to specific discipline requirements in several departments including Biology, Business, Chemistry, Computer Science, Health Sciences, Communications, Mechanical Engineering, and Electrical Engineering;
- access to view your tuition bill, grades, schedule, and transcript as well as view available courses and schedule online. You can also print your academic evaluation, register, or drop classes online.
- a debit card used on campus at all dining locations, library, bookstore, special events, and at many off-campus vendors.

GRADUATE PROGRAMS, DEPARTMENTS AND COURSES

Anti-Money Laundering Certificate – Online

Program Director: Musa Tuzuner, PhD

INTRODUCTION

The graduate certificate in Anti-Money Laundering (AML) is based on compliance requirements and guidelines from US and international laws and regulations, and international organizations. The program is designed from the risk-based approach that is identifying and rating the money laundering risk, developing compliance programs and rating its effectiveness, calculating the residual risk, and designating necessary sources to mitigate the risk. It provides the essential knowledge and capabilities for working professionals and non-working individuals who want to develop themselves with the expertise in the AML professional field.

The curriculum and learning objectives are aligned with current AML and financial crime certifications offered by professional associations. AML is a 12-credit certificate program that can be completed in one year. Courses will be offered in a 7-week format. The certificate is delivered online. The length of the program will be two semesters by taking two courses per semester.

CERTIFICATE OUTCOMES

After the certificate, the participants will be able to:

1. Describe the theoretical and foundational applications of money laundering and terrorism financing process and create a money laundering case report.
2. Identify and compare the roles of national and international anti-money laundering laws, regulations, and standards and build an AML compliance program/regime/system in sectoral, national, regional, and global level.
3. Assess money laundering and terrorism financing risk in terms of customer, geographic location, products and delivery channels, and create a risk assessment report for financial sectors and countries.
4. Analyze the essential elements of AML program/regime/system and develop recommendations about how effectively AML program/regime/system would be strengthened to successfully mitigate the risk.

COURSE DESCRIPTIONS

GAML 502 Anti-Money Laundering
3 credits
This course emphasizes monitoring, detecting, reporting and prevention of money laundering (ML). It explores the foundations of AML, national and international laws and regulations, conducting and supporting investigation processes, and compliance, sanctions and regulatory developments. Students will develop analytical and practical skills of examining failures/vulnerabilities of the AML system which will help build an effective AML compliance system

GAML 503 Risk Assessment and Management
3 credits
This course is designed to provide students with important components of AML risk governance structure, essentials of AML risk-based approach, practical skills of how to build a country level and financial sectoral level risk assessment report, and how to manage the residual money laundering risk.

GAML 605 Counterterrorism Financing
3 credits
The 9/11 terrorist attacks brought significant financial and security challenges to policymakers for the formulation of the policy solutions for countering terrorism. The governmental efforts, aka treasury war, against terrorist financing made counterterrorism financing an essential part of the AML field. This course is designed to provide students with the knowledge of how terrorism works, how terrorist organizations move their funds, and how to build an effective CTF compliance regime.

GAML 606 Cryptocurrency
3 credits
To deal with the new complexities of cryptocurrency (its usage and transaction, and identify, investigate, and prevent money laundering risk emerged from it), new practical skills and expertise about cryptocurrency and blockchain technology should be developed. This course is designed to provide students with essential concepts of cryptocurrency and blockchain technology, and additional knowledge, skills, expertise, and perspective of how to develop an effective AML compliance program to manage cryptocurrency risks.

ADMISSION REQUIREMENTS

1. Completion of an undergraduate degree with a 2.5 QGPA or better from an accredited college or university.
2. TOEFL/other scores if English is not the first language
3. There are no prerequisite course requirements for the graduate certificate in Anti-Money Laundering.
4. Completed graduate application
5. Official academic transcripts from all prior institutions.

Applied Exercise Science

Chairperson: Suzanne Kitts, Ph.D.

MISSION STATEMENT

Our mission in the Department of Applied Exercise Science is to instill in our students the knowledge, skills and abilities that make them leaders in the promotion of safe, active and healthy lifestyle behaviors. Through professional preparation of both undergraduate and graduate students in exercise, sport and associated fields, our exceptional faculty strive for distinction in our respective fields at the local, regional, and national level. We pursue this goal through active engagement in novel and applied research activities that involve both undergraduate and graduate students, through assisting students in making connections between theoretical concepts and real-life applications, through fostering a positive, engaging, and interactive learning environment, through the active promotion of advanced-level educational opportunities and through active participation in local and regional community health initiatives. It is with these initiatives in mind that we design our curriculum, advise our student body, and guide our departmental activities.

Master of Science in Sport and Exercise Science

Concentration: Human Performance and Clinical Physiology

Program Director: J.D. Mosinski, Ph.D.

INTRODUCTION

Students in our Master of Science in Sport and Exercise Science program receive advanced training in human performance consisting of knowledge, skills and abilities in biochemistry, nutrition, psychology, physiology, and sport and clinical exercise physiology. Additionally, students have the opportunity to choose either a thesis or a non-thesis option. In the thesis option, students complete 30 credits of coursework as well as 6 credits of research-based scientific study that will prepare them for mid-level employment in the field and/or entrance into doctoral programs should they choose to continue their education beyond the master level. In the non-thesis option, students complete 30 credits of coursework followed by 6 credits of an academic-year-long internship, many with one of the University's athletic teams or Semi-Professional sports teams in Erie, as well as local hospitals and rehabilitation facilities to provide students with a variety of clinical experiences with a concentration in Human Performance. This M.S. degree is a 36 credit-hour program that is designed to be completed in one calendar year. Students can expect to receive advanced education in many facets of human

performance including the physiological, biomechanical, nutritional and psychological factors that both enhance and limit our movement capabilities. The program offers two degree options: a thesis option, and a non-thesis, year-long internship option. Classes are offered in the morning in the summer, and in the afternoon and evening during the fall and spring semesters to accommodate working students. A part-time option is available for students who are unable to devote the time necessary to attend on a full-time basis. The program is designed to prepare students for gainful employment and/or further graduate training.

STUDENT LEARNING OUTCOMES

The curriculum for the Master of Science degree is designed around providing the student with an advanced, well-balanced, and applied educational experience. Upon graduating with a Master of Science degree in Sport and Exercise Science with a concentration in Human Performance from Gannon University, the student will

- Students will demonstrate advanced knowledge of the neurophysiology of human performance and clinical populations.
- Students will demonstrate advanced knowledge of the physiology of human function and performance.
- Students will demonstrate advanced knowledge of the psychology of human performance.
- Students will apply and demonstrate advanced knowledge of the relationship between nutrition and human performance.
- Students will utilize and demonstrate advanced knowledge on testing the physical capabilities of the body and prescribing activity to improve those parameters.
- Students will demonstrate leadership and expertise in the field of advanced human performance.

ACCREDITATION

The Master of Science in Sport and Exercise Science is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Committee on Accreditation for the Exercise Sciences (CoAES) and CAAHEP's Board of Directors.

ADMISSION REQUIREMENTS

Candidates will be considered for enrollment if they possess the following minimum qualifications:

- Undergraduate degree (or expected degree completion prior to enrollment) in exercise science, kinesiology, human performance, sports medicine or related field.
- Minimum overall and prerequisite GPA of 2.75.
- 3 letters of recommendation.

ADMISSIONS PROCESS

Candidates will be considered on a rolling basis for the summer cohort of the calendar year for which they are applying. On special occasion, students may be considered for fall or spring semester entry. Students will be required to submit an official transcript along with the standard graduate school application as well as three letters of recommendation. Students will be notified of admissions decisions after review by the department admissions committee.

PREREQUISITES COURSEWORK

Prerequisites for internal candidates are below. Students must achieve a grade of "C" or better in each.

Two biology courses (with labs)
One chemistry course (with lab)
Statistics

SPRT130	Sport Nutrition or suitable replacement
SPRT240	Sport Psychology
SPRT250	Exercise Psychology
SPRT310	Research Methods
SPRT360/361	Kinesiology with Lab
SPRT390/391	Exercise Physiology with Lab
SPRT400/401	Exercise Testing and Prescription

It is recommended that external candidates possess the following prerequisite coursework prior to entering the MSES program and having achieved a grade of "C" or better in each.

Nutrition (1 course)
Exercise Physiology (1 course with lab preferred)
Human Anatomy and Physiology (1 course)
Psychology (1 course)
Kinesiology / Biomechanics / Functional Anatomy or similar (1 course)
Exercise Testing and Prescription (1 course with Lab)
Research Methods and/or Statistics (1 course)

DEGREE COMPLETION OPTION: THESIS

Students choosing the thesis option will complete 30 credits of coursework as well as 6 credits of research-based, faculty supervised, scientific study that will culminate in the preparation and defense of the master's thesis, a requirement for graduation. This option prepares the student not only for midlevel employment in the field but also entrance into doctoral programs should they choose to continue their education beyond the master's level. Students will use the first summer session to review current research in the field and to develop a research question of their own. The fall and spring will consist of development, preparation and defense of the master's thesis. While this is certainly an aggressive time frame, provisions are in place that will allow students to extend their graduate program until the thesis project is completed.

DEGREE COMPLETION OPTION: INTERNSHIP

In the non-thesis option, students will complete 30 credit hours of coursework as well as 6 credits of an academic-year-long internship, many with one of the University's athletic teams or a clinical site of their choosing. Under the supervision of both members of the faculty as well as the coaching staff of their respective team or clinical site coordinator, the student intern will serve in the capacity of strength and conditioning coach on their respective teams or exercise/rehabilitation specialist at their clinical site. Students will assist in

the design, implementation, maintenance, and assessment of the team's conditioning activities. NOTE: It is required that students have at least attempted, and preferably successfully completed certification requirements through either the National Strength and Conditioning Association (Certified Strength and Conditioning Specialist) or the American College of Sports Medicine (Health and Fitness Specialist) prior to starting their internship experience. Both of these certification exams are available in a computer-based format that allows for immediate results. Both also require a fee that will be the responsibility of the student upon registration.

CURRICULUM REQUIREMENTS

FULL TIME ENROLLMENT
SUMMER – 12 credits

GSPRT 522	Exercise Testing and Prescription in Clinical Populations	3
GSPRT 510	Advanced Strength and Conditioning	3
GSPRT 520	Advanced Laboratory Techniques	3
GSPRT 530	Research Methods and Statistics in Human Performance	3

FALL – 12 credits

GSPRT 540	Psychological Foundations of Performance	3
GSPRT 550	Advanced Sport Nutrition	3
GSPRT 562	Cardiopulmonary Physiology	3
GSPRT 600	Thesis I or GSPRT 602 Internship I	3

SPRING – 12 credits

GSPRT 573	Exercise Pharmacology	3
GSPRT 581	Neuromuscular Physiology	3
GSPRT 582	Advanced Clinical Exercise Physiology	3
GSPRT 601	Thesis II or GSPRT 603 Internship II	3

PART-TIME ENROLLMENT
SUMMER YEAR 1 – 6 credits

GSPRT 520	Advanced Laboratory Techniques	3
GSPRT 510	Advanced Strength and Conditioning	3

FALL YEAR 1 – 6 credits

GSPRT 540	Psychological Foundations of Performance	3
GSPRT 550	Advanced Sport Nutrition	3

SPRING YEAR 1 – 6 credits

GSPRT 573	Exercise Pharmacology	3
GSPRT 582	Advanced Clinical Exercise Physiology	3

SUMMER YEAR 2 – 6 credits

GSPRT 522	Exercise Testing and Prescription in Clinical Populations	3
GSPRT 530	Research Methods and Statistics in Human Performance	3

FALL YEAR 2 – 6 credits

GSPRT 562	Cardiopulmonary Physiology	3
GSPRT 600	Thesis I or GSPRT 602 Internship I	3

SPRING YEAR 2 – 6 credits

GSPRT 581	Neuromuscular Physiology	3
GSPRT 601	Thesis II or GSPRT 603 Internship II	3

COURSE DESCRIPTIONS

GSPRT 510 Advanced Strength and Conditioning
3 credits
The objective of this course is to provide majors with theoretical and practical knowledge of the physiological, biomechanical, administrative aspects of designing and supervising strength and conditioning programs for various population.

GSPRT 520 Advanced Laboratory Techniques
3 credits
This course is designed to give the student working knowledge of the procedures of various testing techniques used in both the laboratory as well as in field settings. The student will be expected to demonstrate expertise in various laboratory testing techniques as a requisite for course completion.

GSPRT 522 Exercise Testing and Prescription in Clinical Populations
3 credits
This course will provide students who are interested in working within a Clinical Exercise Physiology setting with the necessary skills to test and prescribe exercise for diseased populations. Skills learned will include ECG testing and interpretation, spirometry, as well as strength and aerobic fitness assessments. This course will also prepare students with the information needed to sit for the ACSM Clinical Exercise Physiology Certification exam.

GSPRT 530 Research Methods and Statistics in Human Performance
3 credits
This course is designed to introduce the student to methodological and statistical techniques specific to human performance and related fields. Students will be exposed to the research process and also various statistical techniques used to assess the efficacy of exercise interventions and conditioning programs. Student will also become familiar with various types of research and the benefits and drawbacks of each.

GSPRT 540 Psychological Foundations of Performance
3 credits
The purpose of this course is to help the student gain a greater understanding of psychological and emotional factors that influence athletic and nonathletic performance. Furthermore, the student will learn psychological theories and mechanisms for how psychological skills training can positively influence performance.

GSPRT 550 Advanced Sport Nutrition
3 credits
This course is designed to further develop an understanding of the influence of nutrition for acute and chronic biological and physiological adaptations to physical activity and sport. Emphasis will be placed on adaptations in macronutrients and micronutrients metabolism to fuel energy systems, popular performance enhancing and weight loss supplements, and current research trends that address various sports and populations.

GSPRT 562 Cardiopulmonary Physiology
3 credits
This course is a study of the physical principles as they apply to cardio-pulmonary physiology, anatomy of the lungs and heart, the mechanics of ventilation and pulmonary circulation, airway resistance, hemodynamics, lung compliance, and the non-uniform distribution of ventilation and perfusion. Gas laws and prediction equations to explain physiological changes will be studied and applied to the cardiopulmonary system. Oxygen transport and carbon dioxide transport are also covered in detail. Additional topics include laboratory studies, electrocardiographs, pulmonary function studies, invasive and non-invasive blood gas monitoring, and sleep studies.

GSPRT 573 Exercise Pharmacology
3 credits
This course will introduce students to the general principles of pharmacology and the common medications that they may encounter while working in a clinical exercise setting. Emphasis will be on general classifications of drugs, their mechanisms of action, the effect drug action on exercise and disease response. Attention will also be given to drugs used for therapeutic medication, for recreational purposes and for performance enhancement in sport.

GSPRT 581 Neuromuscular Physiology
3 credits
The purpose of this course is to introduce graduate students to the study of neuromuscular physiology from an applied perspective. For this course, key topics in both cellular and systems physiology related to muscle and nerve function are presented, in addition to basic neuromuscular methodology in the laboratory. These concepts are then related to mechanisms of adaptation and exercise, force control, and control of functional movements in healthy adults, in addition to aging and disease.

GSPRT 582 Advanced Clinical Exercise Physiology
3 credits
This course is designed to provide students with an understanding of the current knowledge and trends in rehabilitation of populations with cardiac, pulmonary and metabolic disorders through assessment and specific exercise programming. This will further include a thorough explanation of the pathogenesis of these disorders. The course will also expose the student to the interpretation of electrocardiograms both at rest and during submaximal and maximal exercise bouts.

GSPRT 600 Master's Thesis I
3 credits
For this course, the student will complete the first four chapters of his or her master's thesis. The chapters include the introduction, literature review, statement of the problem and hypothesis, and proposed methods. This course will be completed prior to data collection on his or her master's thesis and prior to GSPRT 601.

GSPRT 601 Master's Thesis II
3 credits
For this course, the student will complete the final two chapters of his or her master's thesis. The chapters include the results and discussion sections. This course prepares the student for the final thesis defense prior to obtaining the master's degree.

GSPRT 602 Master's Internship I
3 credits
For this course, the student will engage in a practical internship as assigned by the director or instructor of the Sport and Exercise Science Master's program. The majority of these assignments will be in a clinical setting, a corporate fitness or community fitness facility, or with one of the athletic teams at the university. This internship will last the duration of the fall semester and require 150 hours of internship hours.

GSPRT 603 Master's Internship II
3 credits
This course is a continuation of GSPRT 602: Master's Internship I. For this course, the student will engage in a practical internship as assigned by the director or instructor of the Sport and Exercise Science Master's program. The majority of these assignments will be in a clinical setting, a corporate fitness or community fitness facility, or with one of the athletic teams at the university. This internship will last the duration of the spring semester and require 150 hours of internship hours.

Master of Athletic Training

Program Director: Becky Mokris, D.Ed., LAT,ATC

INTRODUCTION

The Gannon University Master of Athletic Training (MAT) program is designed to prepare students to become certified Athletic Trainers through the Board of Certification (BOC). The Master of Athletic Training Program is designed around a comprehensive curriculum that has been created to integrate formal classroom instruction, online coursework and hands on, clinical education experiences.

Athletic Trainers (ATs) are health care professionals who collaborate with other healthcare providers, under the direction of a physician, to provide preventative services, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions. Athletic trainers provide medical services to all types of patients, not just athletes participating in sports. Athletic Trainers practice in professional, collegiate, high school, military, performing arts physician offices, industrial settings and a variety of other healthcare settings.

VISION

The Master of Athletic Training Program will be recognized within the community as a leader in preparing students to become exceptional athletic trainers, embracing social responsibility, and contributing to the profession's body of knowledge.

MISSION

The Gannon University Athletic Training Program is dedicated to the professional preparation of knowledgeable, confident, skilled, compassionate, and reflective entry-level athletic trainers. Through comprehensive didactic, clinical education, and student- faculty interactions, the MAT program will provide a foundation to promote critical thinking; foster foundational behaviors, develop interprofessional collaboration, life-long learning, and ethical practice in a rapidly changing healthcare environment. The program is built upon fostering social responsibility within the athletic training community and serving as an advocate to meet the future needs of health and wellness of the patients and society.

PHILOSOPHY

The philosophy of the MAT program is to create and foster an environment that supports the ethical, legal, and professional responsibilities of an athletic trainer to carry on throughout the profession.

- Open mindedness to an evolving profession that can meet the needs of the community. Encourages students to become proponents of the profession and educate all clientele and employers of the growing demand for these services.
- Continue to be a healthcare advocate, work collaboratively, and put the needs of others as a priority to provide excellent healthcare.

STUDENT LEARNING OUTCOMES

Outcomes have been designed in conjunction with the Standards for accreditation set forth by the national accrediting body that oversees athletic training programs, the Commission on the Accreditation of Athletic Training Education.

PROGRAM GOALS

The Master of Athletic Training Program will:

1. Promote and support excellence in academic and clinical teaching and learning.
2. Prepare students to become certified athletic trainers who will be recognized as excellent entry-level professionals.
3. Provide support and promote the field of athletic training in the community.
4. Promote, support and participate in interprofessional education and collaborative practice.

PROGRAM OUTCOMES AND LEARNING OBJECTIVES:

1. Program graduates will possess the necessary skills in cognitive, behavioral (psychosocial) and clinical skills for successful practice as a health care practitioner.
   - Learning Objective 1.1: Students will be able to demonstrate proficiency in clinical decision-making, evaluation techniques, injury and illness prevention and therapeutic interventions.
   - Learning Objective 1.2: Students will be proficient in psychosocial techniques and promotion of health and wellness in a healthcare and community setting.
   - Learning Objective 1.3: Students will demonstrate proficiency in verbal and written communication as a competent health care provider.
2. Develop health care practitioners that practice evidence-based medicine and life-long learning skills in the health professions.
   - Learning Objective 2.1: Students will demonstrate the use of research to make informed clinical decision making.
   - Learning Objective 2.2: Students will demonstrate proficiency in developing, researching, and analyzing focused clinical questions for development of original scholarship.
   - Learning Objective 2.3: Students will demonstrate understanding of continuing professional development throughout the lifespan of a career.

3. Students will engage in activities that promote a transition to practice with other health professions across a variety of patient populations and various employment opportunities.
   - Learning Objective 3.1: Clinical education will prepare students with learning experiences that prepare students to practice in a professional setting.
   - Learning Objective 3.2: Students will demonstrate the ability to communicate with preceptors, parents, peers, and collaboration with other health care providers.
   - Learning Objective 3.3: Students will develop competence in practicing with a diverse patient population.
4. Students will be able to demonstrate the ability to work within an interdisciplinary health care field promoting leadership, teamwork, ethical behavior and the administrative functions of a healthcare provider.
   - Learning Objective 4.1: After completion of the program students examine various administrative models to incorporate into clinical practice.
   - Learning Objective 4.2: After completion of the program students will demonstrate ethical responsibility as it relates to ethical practices and professionalism within, national, state and institutional policies.
   - Learning Objective 4.3: Upon completion of the program, students will be able to describe the values associated with leadership, service, respect, compassion and empathy in a clinical and community environment.

ACCREDITATION

The Gannon Master of Athletic Training program is accredited through the Commission on Accreditation of Athletic Training Education (CAATE). Only graduates of programs accredited through CAATE are eligible to sit for the Board of Certification (BOC) examination for athletic trainers.

ADMISSION REQUIREMENTS

ENTRY-LEVEL MASTER OF ATHLETIC TRAINING (POST BACCALAUREATE)

Students who have, or will have, completed an undergraduate degree will be considered for admission if they meet the following minimum qualifications:

- Baccalaureate degree from an accredited college or university
- Prerequisite course at a C or better. Grades below a C are not acceptable.
  - One semester Biology (100 level course)
  - 100 level social/behavioral science
  - One semester of Physics (100 level course with or without lab is acceptable)
  - Anatomy and Physiology I and II
  - 2 semesters of 3-4 credits of anatomy with physiology – lab required (may have a 3 credit course if syllabus identifies a lab component) OR 1 semester of anatomy and 1 semester of physiology
  - Statistics
  - Exercise Physiology with Lab (3 or 4 credit depending on syllabus)
  - * may be 3 credit with lab component embedded in course• The student is permitted to retake prerequisite courses but must recognize that, given the accelerated nature of the program, deviating from the designed progression is not recommended if the student is to stay on pace for successful matriculation through to the professional portion of the program.
  - Student must achieve a minimum of a C- or better in:
    - One semester of Chemistry with lab
- Overall undergraduate GPA of 2.75 or better (4.0 scale)
- Applicant demonstrates the ethical, personal, and professional qualities to fulfill the roll of the athletic trainer as determined by review of the applicant's references
- Meets Technical Standards of the athletic trainer
- Successfully pass background checks as required
- International Students: ILETS score of 6.5 or higher, or a TOEFL score of 69 or higher

FIVE-YEAR MASTER OF ATHLETIC TRAINING STUDENTS (3+2 accelerated path)

High school students will be eligible for the five-year Master of Athletic Training program if they meet the following minimum academic criteria:

- Overall high school GPA of 3.0
- SAT of 1000 (math and verbal) or ACT equivalent of 21
- International Students: ILETS score of 6.5 or higher, or a TOEFL score of 69 or higher

ADMISSIONS PROCESS

Candidates for the entry-level master's program will be considered for enrollment on a rolling basis. Students will be accepted for a summer semester entry only. Gannon University and the Master of Athletic Training program receives and reviews applications for the professional Master of Athletic Training program. Gannon internal candidates may apply through the Gannon University graduate admissions application process. Students entering the Master of Athletic Training program through any articulation agreements will be considered internal candidates. All external candidates (non-GU students) must apply through the Athletic Training College Application Service (ATCAS), provided by the Commission on Accreditation of Athletic Training Education (CAATE). Full application instructions can be found on the Gannon University, Master of Athletic Training page by visiting https://atcas.liaisoncas.com.

Students will be notified of admissions decisions after review from the Office of Graduate Admissions and the Master of Athletic Training Program admissions committee. Students will be required to submit official transcripts and verification of degree completion prior to starting course work. Students must attest they are able to meet the technical standards of the program prior to full admission. Additionally, students must complete a criminal background check, a completed physical examination, immunization records and proof of health insurance as part of the final application process.

International students must submit a criminal background check from their country of citizenship in addition to any other criminal background checks required by the Commonwealth of Pennsylvania. Out of state students must complete a criminal background check in their state of residency in addition to any other criminal background checks required by the Commonwealth of Pennsylvania.

The Master of Athletic Training Program has specified admissions guidelines for both five-year and post baccalaureate students that are outlined on the Master of Athletic Training website. See the program's website for complete application process details. The website with this information is *http://www.gannon.edu/Academic-Offerings/Health-Professions-and-Sciences/Graduate/Athletic-Training/Admissions-Information/*

TECHNICAL STANDARDS OF THE ATHLETIC TRAINING STUDENT

The Gannon University Athletic Training Program (MAT) is a rigorous and intense program that places specific requirements and demands on the students enrolled in the program. An objective of this program is to prepare graduates to enter a variety of employment settings and to render care to a wide spectrum of individuals engaged in physical activity. The technical standards set forth by the MAT program establish the essential qualities considered necessary for students admitted to this program to achieve the competencies of an entry-level athletic trainer, as well as meet the expectations of the Commission on Accreditation of Athletic Training Education. The following abilities and expectations must be met by all students admitted to the MAT program. In the event a student is unable to fulfill these technical standards, with or without reasonable accommodation, the student will not be admitted into the program. Compliance with the program's technical standards does not guarantee a student's eligibility for the BOC exam. Candidates for selection to the Athletic Training Program must demonstrate:

1. The mental capacity to assimilate, analyze, synthesize, integrate concepts and problem solve to formulate assessment and therapeutic judgments and to be able to distinguish deviations from the norm.
2. Sufficient postural and neuromuscular control, sensory function, and coordination to perform appropriate physical examinations using accepted techniques; and accurately, safely and efficiently use equipment and materials during the assessment and treatment of patients.
3. The ability to communicate effectively and sensitively with patients and colleagues, including individuals from different cultural and social backgrounds; this includes, but is not limited to, the ability to establish rapport with patients and communicate judgments and treatment information effectively. Students must be able to understand and speak the English language at a level consistent with competent professional practice.
4. The ability to record the physical examination results and a treatment plan clearly and accurately.
5. The capacity to maintain composure and continue to function well during periods of high stress.
6. The perseverance, diligence and commitment to complete the ATP curriculum as outlined and sequenced.
7. Flexibility and the ability to adjust to changing situations and uncertainty in clinical situations.
8. Affective skills and appropriate demeanor and rapport that relate to professional education and quality patient care.

Candidates for selection to the Gannon University MAT program will be required to verify they understand and meet these technical standards or that they believe that, with certain accommodations, they can meet the standards. In compliance with the Americans with Disabilities Act, the admissions process does not require disclosure of a disability. However, all enrolled students must be capable of meeting the technical standards for the academic and clinical education components of the Athletic Training program.

These technical standards are necessary for full participation in the curriculum and it is expected that students will function independently, which generally means, without the aid of an intermediary, to achieve proficiency in all curricular areas. Applicants and students should review the technical standards for the AT Program carefully. A student who has a disability may request reasonable accommodations.

ACADEMIC PROGRESSION

Students enrolled in the five-year master's degree program will be required to meet the following criteria to retain their guaranteed admission to the professional phase of the education (years four and five). Failure to do so may interrupt the planned course of study.

- Maintain a cumulative GPA of 3.0 evaluated after sophomore year, spring semester. Failure to do so will lead to probationary status in which the student will be granted one year to show progress toward raising their GPA to the acceptable standard. At the end of the yearlong probationary period, the student must possess a cumulative and prerequisite GPA of 3.0 or higher or they will be removed from the five-year master's program and will be placed in an alternative plan of study. The student may then apply for admission to the entry-level master's degree program at the conclusion of the undergraduate degree and will be considered according to the standards highlighted previously.
  - * exceptions may be made on a case by case basis based on the discretion of the program director and a review of the overall academic progress with the Dean.
- Students must achieve a grade of "C" or better in all prerequisite courses.
  - One semester Biology (100 level course)
  - 200 level social/behavioral science (Gannon students take PSYCH 222
  - One semester of Physics (100 level course with or without lab is acceptable)

  - Anatomy and Physiology I and II
    - 2 semesters of 3-4 credits of anatomy with physiology – lab required (may have a 3 credit course if syllabus identifies a lab component) OR 1 semester of anatomy and 1 semester of physiology
  - Statistics
  - Exercise Physiology with Lab (3 or 4 credit depending on syllabus)

    * may be 3 credit with lab component embedded in course• The student is permitted to retake prerequisite courses but must recognize that, given the accelerated nature of the program, deviating from the designed progression is not recommended if the student is to stay on pace for successful matriculation through to the professional portion of the program.
- Students must achieve a C- or better in:
- One semester of Chemistry with lab

Students enrolled in the professional phase of the MAT program will be required to meet the following criteria in order to matriculate to graduation from the program.

- Maintain a cumulative GPA of 3.0; students who fall below these criteria will be granted one semester of probationary status in which they will be required to raise their grade point average above the minimum standard, or they will be separated from the program.
- Achieve a grade of "C" or better in all graduate level courses.
- Retake no more than two 500-level courses over the course of the program.
- Retaking a course will lead to deceleration in the program and will delay completion of the program

Entry-Level Post-Baccalaureate Option

The post baccalaureate, two year program, is designed for students who have already completed a bachelor's degree in a related field or have met the admission requirements for graduate entry. The program consists of 60 credits of graduate level education and clinical experiences. The multi-year cycle is below.

Five-Year Bachelor's to Master Option

The five-year master's degree option is designed for incoming freshmen (or transfers who meet degree matriculation requirements) who are interested in an accelerated path toward the Master in Athletic Training (MAT) degree. In this option, students complete three years of undergraduate course work within the Applied Exercise Science foundational and core courses as well as the Gannon University Liberal Studies Core followed by two years of the professional level MAT core courses creating the 3+2 accelerated path. Students will begin their "professional phase" beginning the summer after their junior year and will then have graduate student status. At the conclusion of the spring semester of the 4th year students will receive a Bachelor of Science degree in Applied Exercise Science. Following the completion of the 5th year, students will receive a Master of Athletic Training degree.

CURRICULUM REQUIREMENTS

ENTRY-LEVEL MASTER OF ATHLETIC TRAINING (60 CREDITS TOTAL)

SUMMER YEAR 1 – 10 credits

GMAT 502	Applied Kinesiology	3
GMAT 503	Foundations in Therapeutic Interventions	2
GMAT 504	Clinical Application of Care/Prevention in AT	3
GMAT 506	Principles of Athletic Training	2

FALL YEAR 1 – 11 credits

GMAT 516	Clinical Experience in AT I	4
GMAT 517	Evidence-Based Practice I	1
GMAT 531	Evaluation and Treatment of the Lower Extremity	4
GMAT 542	Clinical Medicine I	2

SPRING YEAR 1 – 11 credits

GMAT 529	Evidence Based Practice II	1
GMAT 538	Evaluation and Treatment of the Upper Extremity	4
GMAT 546	Clinical Experience in AT II	4
GMAT 611	Clinical Medicine II	2

SUMMER YEAR 2 – 9 credits

GMAT 554	Health and Fitness Principles	2
GMAT 612	Clinical Experience in AT III	2
GMAT 655	Organization and Administration	3
GMAT 685	Behavioral and Psychological Conditions in AT	2

FALL YEAR 2 – 10 credits

GMAT 556	Practical Applications of Health and Wellness	2
GMAT 633	Evidence-Based Practice III	1
GMAT 577	Eval and Treatment of the Head, Neck and Spine	3
GMAT 631	Clinical Experience in AT IV	4

SPRING YEAR 2 – 9 credits

GMAT 688	Athletic Training Capstone	1
GMAT 670	Clinical Experience in AT V	8

CURRICULUM REQUIREMENTS

FIVE-YEAR MASTER OF ATHLETIC TRAINING (164 CREDITS TOTAL)

FRESHMAN FALL – 17 credits

LENG 111	College Composition	3
LTHE 101	Foundations of Theology and Christian Morality	3
LPHI 131	Introduction to Philosophy	3
	First Year Seminar	2
SPCH 111	Public Speaking	3
PSYC 111	Introduction to Psychology	3

FRESHMAN SPRING – 18 credits

LENG 112	Critical Analysis	3
LTHE 201	The Bible: An Introduction	3
LPHI	Philosophy II	3
LHST 111	History Without Borders	3
SPRT 130	Sport Nutrition	3
BIOL 104	Human Biology	3

SOPHOMORE FALL – 17 credits

SPRT 310	Research Methods	3
LENG	Literature Series	3
CHEM 111	General Chemistry I	3
CHEM 112	General Chemistry I lab	1
MATH 112	Trigonometry	3
BIOL 115	Human Anatomy and Physiology I	3
BIOL 116	Human Anatomy and Physiology I lab	1

SOPHOMORE SPRING – 17 credits

SPRT 250	Exercise Psychology	3
BIOL 117	Human Anatomy and Physiology II	3
BIOL 118	Human Anatomy and Physiology II lab	1
PSYC 211	Psychology Statistics	3
SPRT 360	Kinesiology	3
SPRT 361	Kinesiology Lab	1
PSYC 222	Psychology of Human Development	3

JUNIOR FALL – 18 credits

PHYS101	Introduction to Physics	3
SPRT 390	Exercise Physiology	3
SPRT 391	Exercise Physiology	1
SPRT 400	Exercise Testing and Prescription	3
SPRT 401	Exercise Testing and Prescription Lab	1
	LTHE 300 level or LPHI 237 (THEO/PHIL III)	3
	Leadership Seminar	1
LFIN	Fine Arts Series	3

JUNIOR SPRING – 16 credits

SPRT 425	Clinical Exercise Physiology	3
SPRT 415	Motor Learning and Performance	3
SPRT 416	Human Motor Control	3
SPRT 420	Care and Prevention of Injuries	4
LBST 383	Senior Seminar	3

SUMMER YEAR 1 – 10 credits

GMAT 506	Principles of Athletic Training	2
GMAT 504	Clinical Application of Care/Prevention in AT	3
GMAT 502	Applied Kinesiology	3
GMAT 503	Foundations in Therapeutic Interventions	2

FALL YEAR 1 – 11 credits

GMAT 531	Evaluation and Treatment of the Lower Extremity	4
GMAT 542	Clinical Medicine I	2
GMAT 517	Evidence-Based Practice I	1
GMAT 516	Clinical Experience in AT I	4

SPRING YEAR 1 – 11 credits

GMAT 538	Evaluation and Treatment of the Upper Extremity	4
GMAT 611	Clinical Medicine II	2
GMAT 529	Evidence Based Practice II	1
GMAT 546	Clinical Experience in AT II	4

SUMMER YEAR 2 – 9 credits

GMAT 554	Health and Fitness Principles	2
GMAT 685	Behavioral and Psychological Conditions in AT	2
GMAT 655	Organization and Administration	3
GMAT 612	Clinical Experience in AT III	2

FALL YEAR 2 – 10 credits

GMAT 633	Evidence-Based Practice III	1
GMAT 577	Eval and Treatment of the Head, Neck and Spine	3
GMAT 631	Clinical Experience in AT IV	4
GMAT 556	Practical Applications of Health and Wellness	2

SPRING YEAR 2 – 9 credits

GMAT 688	Athletic Training Capstone	1
GMAT 670	Clinical Experience in AT V	8

COURSE DESCRIPTIONS

Students must be enrolled in the MAT program to enroll in these courses.

GMAT 502 Applied Kinesiology
3 cr. lecture/lab
The purpose of this course is to explore human movement during performance of activities, especially the geometry of movement (kinematics) and the forces influencing movement (kinetics). This course will focus on applying an understanding of human movement and pathomechanics in a manner that is foundational for future studies in rehabilitation.

GMAT 503 Foundation in Therapeutic Interventions
2 cr. lecture
This introductory course provides student with knowledge of theory and physiological concepts related to physical rehabilitation and therapeutic modalities. This course will relay foundational knowledge needed for clinical application.

GMAT 504 Clinical Application of Care/Prevention in AT
3 cr. lab
This course will develop the essential skill application needed for the prevention, assessment, and treatment of acute and emergent illnesses and injuries within the profession of athletic training. Emergency procedures, therapeutic taping, bracing, splinting techniques, and referral decisions will also be evaluated in this course.

GMAT 506 Principles of Athletic Training
2cr. lecture
This course provides an introduction to the athletic training profession and an overview of the essential functions and duties of an athletic trainer as well as the sports medicine team. Students will gain basic skills required for general injury and illness prevention, legal considerations, environmental concerns, and general evaluationprocess.

GMAT 516 Clinical Experience in Athletic Training I
4 cr. clinical
Prerequisite GMAT 504 and GMAT 506
This supervised clinical educational experience develops hands-on application of athletic training skills with program approved health care providers. Students will be able to develop professional behaviors and interactions within a health care team.

GMAT 517 Evidence-Based Practice I
1 cr. lecture
This course is designed to discuss the role of research in the health professions. Content will discuss research terminology, epidemiology, database searches, developing research questions and the use of disablement models.

GMAT 529 Evidence-Based Practice II
1 cr. lecture
Prerequisite GMAT 517
This course will introduce the students on the research process which includes research hypotheses, research design, methods, statistical techniques and the ethical issues regarding human subjects.

GMAT 531 Evaluation and Treatment of the Lower Extremity
4 cr. lecture/lab
Prerequisite GMAT 502
This course addresses evaluation and assessment techniques of musculoskeletal injuries to the lower extremity. Through didactic and hands-on learning the student will integrate knowledge of anatomical structures, physiological principles, and evaluative techniques to provide a basis for critical decision-making in an injury management environment. Decision-making will be based on recognition, evaluation, and immediate care of orthopedic injuries caused by physical activity or exercise. This course will further discuss appropriate therapeutic intervention techniques used to treat pathological conditions related to lower extremity function.

GMAT 538 Evaluation and Treatment of the Upper Extremity
4 cr. Lecture/lab
Prerequisite GMAT 531
This course addresses evaluation and assessment techniques of musculoskeletal injuries to the upper extremity. Through didactic and hands-on learning the student will integrate knowledge of anatomical structures, physiological principles, and evaluative techniques to provide a basis for critical decision-making in an injury management environment. Students will review clinical reasoning skills based on recognition, evaluation, and immediate care of orthopedic injuries in the upper extremity. This course will further discuss appropriate therapeutic intervention techniques used to treat pathological conditions related to upper extremity function.

GMAT 542 Clinical Medicine I
2 cr. Lecture
This course is an introduction to medical conditions for the athletic trainer/health care provider, diagnostic imaging testing, and basic principles of pharmacology. The course will review common procedures used in the athletic training facility. This course will also discuss special considerations for athletes such as drug misuse and performance enhancing drugs used by athletes and ethical issues surrounding the use of pharmacology in sport.

GMAT 546 Clinical Experience in Athletic Training II
4 cr. Clinical
Prerequisite GMAT 516
This supervised, semester long, clinical educational experience develops hands-on application of athletic training skills with program-approved health care providers. Students will be able to develop professional behaviors and interactions within a health care team.

GMAT 554 Health and Fitness Principles
2 cr. Lecture
Course will examine the principles of nutrition and wellness as specifically related to sports participants. Students will acquire the knowledge necessary to apply sound nutritional, strength and conditioning, and wellness practices in the athletic population. This course also focuses on the design and application of programs for diet planning, aerobic and anaerobic training.

GMAT 556 Practical Applications of Health and Wellness
2 cr. Lab
Prerequisite GMAT 554
Course will examine the principles of nutrition and wellness as specifically related to sports participants. This course is designed to instruct students in the safety and proper mechanics of wellness and weight training. Students will acquire knowledge as to the developments of specific resistance training programs through activity, laboratory and technology experiences. This course also focuses on the design and application of programs for diet planning, aerobic and anaerobic training.

GMAT 577 Evaluation and Treatment of the Head, Neck and Spine
3 cr. Lecture/lab
Prerequisite GMAT 538
This course addresses evaluation and assessment techniques of musculoskeletal injuries to the head, neck and spine. Through a hands-on approach the student will integrate knowledge of anatomical structures, physiological principles, and evaluative techniques to provide a basis for critical decision-making in an injury management environment. Decision-making will be based on recognition, evaluation, and immediate care of injuries to the head, neck and spine. Treatment intervention strategies will be addressed related to pathologies discussed within the course.

GMAT 611 Clinical Medicine II
2 cr. Lecture
Prerequisite GMAT 542
The course is a continuation of Clinical Medicine I that continues to prepare athletic training students with normal and abnormal physiology of different body systems and the differential diagnoses of various medical conditions. The course will discuss the pharmacological agents used in the treatment of the medical conditions.

GMAT 612 Clinical Experience in Athletic Training III
2 cr. Clinical
Prerequisite GMAT 545
This course is designed to provide students with opportunities to develop clinical proficiency in evaluation, diagnosis, and treatment on non-orthopedic conditions developed through the lifespan.

GMAT 631 Clinical Experience in Athletic Training IV
4 cr. Clinical
Prerequisite GMAT 612
This supervised clinical educational experience develops hands-on application of athletic training skills with program approved health care providers. Students will be able to develop professional behaviors and interactions within a health care team and work toward autonomous practice readiness.

GMAT 633 Evidence-Based Practice III
1 cr. Lecture
Prerequisite GMAT 517 and GMAT 529
This course will educate students regarding development of discussion points and finalize scholarly research. Students will also prepare scholarly work with the intent of utilizing a public forum for dissemination.

GMAT 655 Organization and Administration in Athletic Training
3 cr. Lecture
Discussion of the issues in the organization and administration of athletic training programs to facilities. Topics will cover the knowledge to develop, administer, and manage a facility. Legal responsibility, protection of individuals, and implications of misconduct will be addressed. In addition, professional responsibilities and avenues of professional development will be addressed.

GMAT 670 Clinical Experience in Athletic Training V
8 cr. Clinical
Prerequisite GMAT 631
This full-time clinical experience is designed for immersion into supervised athletic training practice. Working closely with preceptors, students will gain continued experience in all aspects of athletic training with an emphasis on inter-professional practice. Working closely with preceptors, students will gain continued experience in all aspects of athletic training, placing emphasis on transition to practice and development of leadership and organizational skills.

GMAT 685 Behavioral and Psychological Considerations in AT
2 cr. Lecture
Students in the course will gain a comprehensive understanding of the psychosocial impact of injury and the rehabilitation process. Topics include, but are not limited to, psychosocial antecedents to injury, the emotional impact of injury, and the role that the athletic trainer plays in the rehabilitation process, not only physically, but psychosocially.

GMAT 688 Capstone in Athletic Training
1 cr. Lecture
This course is designed to discuss contemporary issues of transition to practice as an entry level professional and to prepare students for the Board of Certification Examination.

Biomedical Engineering

Director: Davide Piovesan Ph. D.

INTRODUCTION

Biomedical Engineering (BME) or Medical Engineering is applying engineering principles and design concepts to medicine and biology for healthcare purposes (e.g., diagnostic or therapeutic). This field seeks to close the gap between engineering and medicine, combining the design and problem-solving skills of engineering with medical, biological sciences to advance health care treatment, including diagnosis, monitoring, and therapy. Gannon University Graduate program focuses on Biomechanics, Bio-Mechatronics, and Biomaterials.

PROGRAM OBJECTIVES:

The Master's Program is designed to produce graduates who:

1. Advanced knowledge and skills appropriate to Biomedical Engineering.
   - Analyze data and apply critical thinking skills to identify bio-medical problems, manage risk, or propose data-driven recommendations or solutions
2. Knowledge or application of ethical standards within Biomedical Engineering.
   - demonstrate appropriate leadership skills while recognizing and assessing moral and ethical components and complexity of challenges faced by the medical and engineering community
3. Professional communication and disseminated information appropriate for Biomedical Engineering.
   - Display competence with oral, written and graphical communications, appropriate for professional clinical and engineering environments
4. Contributions, such as service, to the Biomedical Engineering profession and/or community.

DEGREES OFFERED

The program offers a Master of Science degree in biomedical engineering (MS-BME).

ADMISSION REQUIREMENTS

1. Applicants must have earned a Bachelor's degree in Biomedical Engineering from an ABET-accredited program or equivalent to a QPA of 2.5 or better.
2. Applicants with non-biomedical degrees may be admitted but may require additional course work as determined by the program director.
3. Applicants must submit the following:
   a. Completed application
   b. Transcripts for all prior college coursework
   c. Three recommendation letters
   d. TOEFL scores if English is not the first language

CURRICULUM

Upon commencement of graduate studies in the Biomedical Engineering Program, the student can choose to study for a biomechanical or biomaterial track. The student will be assigned an initial academic advisor by the program director. The advisor and student will select appropriate courses for the objectives of the student and obtain approval of this course of study through the academic approval sequence.

Course Requirements:

Programming course: Either GECE 502 Embedded C Programming, GME565 Computer Assisted Engineering or Equivalent graduate programming course.

Advanced Math course: Either GENG 603 Advanced Engineering Analysis I or equivalent GECE 704

All students must complete at least one systems development course before graduation.

Systems development courses:

GCIS 514	Requirements and Project Management
GECE 501	Engineering Project and Management
GENG 570	Introduction to Systems Engineering
GENG 624	Project Management

Students are required to take 4 courses out of the chosen concentration.

MATERIALS		**Credit**
GBME 562	Surface Science And Engineering	3
GBME 554	Tribology	3
GBME 571	Continuous Biomechanics	3
GBME 566	Energy Storage Systems	3
GBME 589	Nanotechnology for E Bio-engineers	3
GBME 583	Polymer Bio-Engineering	3

BIOMECHANICS AND PROSTHETICS		
GBME 580	Haptics	3
GBME 560	Biosignal processing	3
GBME 579	Biomedical robotics and biomimetics	3
GBME 567	Biofluid	3
GBME 565	Bioheat Transfer	3
GME 630	Computational Fluid Dynamics	3

The remaining courses are electives and can be chosen among GBME, GENG, GME, GECE if prerequisites are satisfied.

After the student has completed 12 graduate credits of study, the student will be assessed relative to their preparedness to begin thesis or project work. The candidate must have a 3.0 QPA to continue for the degree. The candidate must then choose one of the three projects/ thesis plans below for completion of their degree, and an advisor will be assigned to guide the candidate for the completion of the degree work. Students cannot register for project/thesis credits until after 12 credits of graduate work are completed (see plans A, B, and C below). The degrees require a total of 30 credit hours of graduate work. Up to 6 credits of approved graduate work can be transferred from another graduate program.

Plan A (Thesis):
The candidate will be required to submit a 6 credit thesis as part of the 30 credits of graduate course work and pass a final oral examination on the thesis material and related subjects. The thesis work must be approved by the faculty and program director before the commencement of the research work. The thesis advisor will direct the student's work and determine when to recommend the manuscript for review by a faculty committee. The review committee will be appointed by the program director and shall consist of at least three full-time Gannon engineering faculty members familiar with the subject material and one member outside the BISE department. The outside member can be from the industry. The faculty advisor will be the chair of the review committee. **The credit for the thesis will be counted in lieu of 6 technical elective credits**

Plan B (Project):
The student will be required to complete a design project and to pass a final examination covering the student's project and related subject areas. The project can be worth 3 or 6 credits as part of the 30 credits of graduate course work, depending on the difficulty of the project. The project must be approved by the faculty and program director prior to the commencement of the project work. The project advisor will direct the student's work and determine when to recommend the manuscript for review by a faculty committee. The review committee will be appointed by the faculty and program director and shall consist of at least three full-time Gannon engineering faculty members familiar with the subject material, and the faculty advisor will be the chair of the review committee. **The credit for the project will be counted in lieu of technical elective credits.**

Plan C (Project Course):
The student will be required to complete a 3 credit course designated as a project course. The program director will approve the project course prior to the commencement of the project work and must include a significant project for its completion. The course instructor will inform the student of the complete requirements for the project course and will oversee the work to ensure that the student satisfies these requirements. Students are required to prepare a manuscript in thesis format for the project.

In order to earn the master's degree in Biomedical Engineering, students must complete all required coursework outlined within the curriculum matrix with no grade below a C. Students must also maintain a cumulative GPA equal to or greater than 3.0 and fulfill all graduate study and specific degree completion requirements as outlined in the Gannon University Graduate Catalog.

Since this is a graduate program with no immediate intentions of delivering curriculum online, there is no impact on liberal studies outcomes or distance education. The alignment of program outcomes with graduate outcomes is provided below.

FIVE-YEAR BACHELOR OF SCIENCE BIOMEDICAL ENGINEERING (BME)/ MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING (M.E.) DEGREE PROGRAM

The five-year BME Bachelor of Science/BME Master of Science degree is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate and a graduate degree. The programs may be completed in five years of full-time study (includes one summer). Students in their Junior first semester with a minimum 2.8 cumulative GPA can apply for this program. The students accepted into this program should plan to complete a set of Liberal Studies courses during the summer after their junior year. A set of first-year graduate courses will be taken during the senior year. No more than seven additional graduate credits are allowed prior to the completion of the B.S. degree.

COURSE DESCRIPTIONS

GBME 562 Surface Science and Engineering
3 credits
This course provides an introduction to surface properties of materials and an overview of electron microscopy, surface analysis techniques, adhesion and adhesive bonding technology. The course emphasizes conceptual understanding as well as practical industrial-related applications of the material. Topics covered include surface properties of materials, surface wettability and surface tension, surface modification treatments, microscopy and surface analysis techniques, adhesion, adhesive bonding and related industrial applications, bond failure investigations and failure analysis.

GBME 554: Tribology
3 credits
This course addresses the design of tribological systems: the interfaces between two or more bodies in relative motion. Fundamental topics include: geometric, chemical, and physical characterization of surfaces; friction and wear mechanisms for metal, polymers, and ceramics, including abrasive wear, delamination theory, tool wear, erosive wear, wear of polymers and composites; and boundary lubrication and solid-film lubrication. The course

also considers the relationship between nano-tribology and macro-tribology, rolling contracts, tribological problems in magnetic recording and electrical contracts, and monitoring and diagnosis of friction and wear. Case studies are used to illustrate key points.

GBME 560: Biosignal Processing
3 credits
In this course, students will learn how to design and choose a filter for processing signals commonly collected in Biomedical Engineering (e.g., electromyography, electrocardiogram, forceplate data). Topics to be covered include FIR filters, IIR filters, Butterworth filters, and residual analysis. Signal processing will be performed using user-generated code to understand how these filters are practically implemented.

GBME 565: Biomedical Heat and Mass Transfer
3 credits
This course is an introduction to biomedical heat and mass transfer. The relevant principles of heat transfer will be reviewed. Macroscopic and microscopic approaches to biomedical heat transfer will be covered. An introduction to mass transfer and its applications in biomedical and biological systems will be presented.

GBME 566 Energy Storage Systems
3 credits
In this course, energy storage techniques such as thermal, electrochemical, mechanical, and electromagnetic, as well as energy storage in organic biofuels, will be covered. Different energy storage methods will be compared in terms of cost, size, weight, reliability, and lifetimes. The differences, advantages, disadvantages, and variety of applications of these techniques will be presented. Specific emphasis will be placed on biomedical systems such as rehabilitation systems, implantable and wearable devices.

GBME 567 Biofluid Mechanics
3 credits
The course introduces fundamental physical concepts and mathematical equations describing the dynamics of fluid flows and their application to biomedical problems. At the completion of the course, students should be familiar with the basic governing equations of fluid flows, understand several basic flows in different human organ systems, understand methods used to study flows in biomedical engineering.

GBME 571: Continuum Biomechanics
3 credits
This course is concerned with the study of continuum mechanics applied to biological systems. This subject allows the description of when a bone may fracture due to excessive loading, how blood behaves as both a solid and a fluid, down to how cells respond to mechanical forces that lead to changes in their behavior.

GBME 579: Biomedical Robotics and Biomimetics
3 credits
Biomedical Robotics focuses on activities such as rehabilitation, training/simulation, manipulation, surgery. These areas currently depend on labor-intensive manual procedures performed by highly trained professionals. The goal of the course is to analyze how to improve and transform these operations through teleoperation and automation. Furthermore, several aspects of biomimetics will be discussed during the course. Biomimetics uses nature as an example to build robots that can swim like a fish, fly like a bird or insect, and walk on rough terrain as many quadrupeds.

GBME 580: Haptics
3 credits
In this course, students will learn about tactile sensors, how they are programmed, and real-world applications of these sensors. Topics to be covered include tactile sensors, piezoelectric sensors, and robotic surgery.

GBME 583 Polymer Bio-Engineering
3 credits
Prerequisite: Background in general chemistry and material science as undergraduate.
This course is designed to introduce graduate engineering students to the important field of polymer science. The course will be focused on the fundamentals of polymer science. Since polymers are ubiquitous in modern society, a background in this subject is essential for engineers who wish to pursue careers in the industry.

GBME 589 Nanotechnology for Bio-Engineers
3 credits
Prerequisite: Background in general chemistry and material science as undergraduate.
This course is designed to introduce graduate engineering students to the important field of nanotechnology. The course will be focused on the fundamentals of nanomaterials (i.e., synthesis, characterization, properties, and applications). Since nanotechnology is a field with an incredible promise to change the future of society in almost every facet, a background in this subject is essential for engineers who wish to pursue careers in the industry.

GBME 680: Graduate Internship
1-3 credits
For this course, the student will engage in a practical internship as assigned by the director of the Biomedical Engineering Master's program. The experience must provide significant responsibilities or learning opportunities in Biomedical Engineering. Each credit is considered as 50 hours of internship hours.

Business Administration (MBA) – Online

Director: Celene M. Kalivoda, DBA

INTRODUCTION

Gannon University is a student-oriented teaching university. This philosophy guides our approach to curriculum design, teaching, and advising. We recognize and understand the dramatic changes ongoing in the world of business. The mission of the Gannon MBA Program is to provide students with the vision, values, and skills required to lead successful professional and rewarding personal lives within this exciting new world. Our approach is to pay careful attention to each student, challenge them to grow, and help them to reach their own personal and career objectives. Courses in the Master of Business Administration Program (MBA) are rigorous and challenging by design, but the faculty is prepared to work with each student to build the skills needed for the business world of the 21st century.

Gannon University's MBA program was founded in 1970 and our experience as the region's first graduate program in business has taught us some important lessons. Simply having a master's degree, regardless of the type of degree or apparent status of the degree-granting institution, is no assurance of success or happiness. To succeed in business, individuals need real skills, an understanding of the complex business environment and an appreciation for the value of work itself. Our network of over 1,600 MBA alumni is a proud testament to Gannon's ability to make success happen for its graduate students. Gannon MBA Alumni include Presidents/CEO's, Vice Presidents, CFO's, Treasurers, and Managing Partners. In addition, over 60 have earned advanced degrees, including doctorates from some of the most prestigious academic institutions in North America (Indiana University, University of Michigan, Pennsylvania State University, the University of Pennsylvania's Wharton School, and Stanford University to name a few). More than 45 Gannon MBA's are currently teaching in colleges and universities.

The purpose of the Gannon University Online Master of Business Administration Program is to develop leaders with a sound understanding of the role of business in society. Globally accredited by ACBSP (Accreditation Council for Business Schools and Programs), our program centers on honing ethical decision making and problem solving skills, via content with an applied, practical application, in the functional areas of business. Our dedicated faculty and seasoned practitioners offer a dynamic and diverse learning experience for students, whereby our graduates are equipped with transferable skills that are easily adapted to different areas of business, government, and industry, both domestically and globally.

MISSION AND OUTCOMES OF THE ONLINE MBA PROGRAM

The mission of the Gannon University Master of Business Administration Online Program is to provide an ethics based graduate level education with an emphasis on practical knowledge and application in the functional areas of management. The program is grounded in sound business theory presented by faculty actively engaged in scholarship in the pure and applied fields of business.

To achieve the practical knowledge outlined above, the outcomes of the program are:

1. Demonstrate knowledge of the challenges and opportunities in a global business environment;
2. Identify and describe the interrelationships among the functional areas of business;
3. Apply analytical skills to formulate business decisions
4. Apply appropriate leadership skills and ethical principles in an organizational context
5. Employ effective communication skills; and
6. Demonstrate team building skills.

ACCREDITATION

The Business Administration program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP), a global accreditation body for business schools.

ADMISSION REQUIREMENTS

For all students:

- A Bachelor's Degree in any discipline from an accredited college or university
- A cumulative undergraduate GPA of 3.0 or higher.
- If your undergraduate GPA is less than a 3.0 on a 4.0 scale, there are two options:
  - Take the GMAT and achieve a score of 1050 using the formula: 200 x (undergraduate GPA) + GMAT score.
  - GMAT requirement may be waived based on professional experience following the Program Director's review of application
- A completed application for admission
- Official transcripts from all prior institutions
- TOEFL scores if English is not a first language

CURRICULUM

The Gannon Online MBA is a professional degree program. Students in the program have a wide variety of academic and professional backgrounds. For Online MBA candidates whose undergraduate degree is in a field other than Business and/or have not obtained the prerequisite skills required for the core courses, Gannon has partnered with Peregrine Academic Services for students to take Academic Leveling Courses (ALC).

An ALC is a course that provides a summary or overview of key concepts related to competencies required as foundational knowledge in the program. As a program prerequisite, the ALC sequence ensures that students have demonstrated an appropriate level of competency to maximize success with the online MBA core coursework. For the Gannon University Online MBA program, the ALCs will be completed by students holding a Bachelor's degree in a non-business field. Upon successful completion of the ALCs, students may progress into the core curriculum requirements.

The Core curriculum contains 24 credits of required courses and there are 6 credits of electives available. The Online MBA degree is a total of 30 credits. The ALCs are not credit bearing courses.

Online MBA Academic Leveling Modules (7 required)
Required for non-business bachelor's degree holders only; Offered through Peregrine Academic Services:

- Foundations of Accounting
- Foundations of Quantitative Research Techniques and Statistics
- Foundations of Marketing
- Foundations of Business Integration and Strategic Management
- Foundations of Business Finance
- Foundations of Macroeconomics
- Foundations of Microeconomics

Gannon Online MBA Core Courses
(24 credits total, semesters traditionally offered indicated)
GMBA 601: Managerial Accounting – FA1 and SP2
GMBA 631: Organizational Culture, Creativity and Change – FA1 and SP1
GMBA 641: Operations and Supply Chain Management – SP1 and SU1
GMBA 651: Marketing Management – FA1 and SU1
GMBA 661: Financial Management – FA2 and SU1
GMBA 686: Leadership and Business Ethics – SP1 and SU2
GMBA 736: Human Resource Management – FA1 and SP2
GMBA 799: Business Policy and Strategy – FA2, SP2 and SU2 (Course must be taken during the student's last semester in the Online MBA Program)

Gannon Online MBA Electives
(6 credits) (Select two (2) courses)
GMBA 735: Employee Relations and Employment/Labor Law – SP2 (Prerequisite: GMBA 631)
GMBA 752: Consumer Behavior – SU2 (Prerequisite: GMBA 651)
GMBA 764: Investments – SU2 (Prerequisite: GMBA 661)
GMBA 774: Strategic Management – FA2

See MBA Program Director for other online graduate elective course options, including GMHA courses approved by the MHA Program Director.

STANDARD ONLINE MBA GRADING SCALE

Numerical Grade	Letter Grade	Grade Points (per credit hour)
97+	A+	4.0
93-96.99	A	4.0
90-92.99	A-	3.7
87-89.99	B+	3.3
83-86.99	B	3.0
80-82.99	B-	2.7
77-79.99	C+	2.3
70-76.99	C	2.0
Below 70	F	0

4+1 ONLINE MBA DEGREE PROGRAM

The 4+1 Online MBA degree program is designed to allow undergraduate students (from many disciplines) the opportunity to earn both an undergraduate degree and an online MBA within a five year period. Students from any major may apply and should do so before they begin their junior year. Working with both the undergraduate advisor and the Online MBA Program Director, the student will customize a schedule in which they will take graduate courses during their junior or senior years. Students who successfully complete these courses may apply to continue into the Online MBA program to complete the remaining credits. Applicants to the program must have a 3.0 undergraduate GPA. Retention in the program requires that the student maintain a minimum of a 3.0 GPA for their undergraduate studies.

Students who do not have business undergraduate foundational knowledge through prior coursework will be required to obtain the core competencies through the Peregrine Academic Leveling Courses (ALC's).

INTERNSHIPS

Gannon Online MBA students may, with permission of the MBA Program Director, accept placements in fields that are related to their academic studies. In some circumstances, these placements can be credit bearing and substituted for an elective course. Students may take a 3 credit internship for credit with the permission of the MBA Program Director, provided the experience adds to the student's knowledge and ability in their chosen field of study.

COURSE DESCRIPTIONS

ACADEMIC LEVELING COURSES

See Peregrine Academic Services Website for Descriptions of the Academic Leveling Course Modules below:

Foundations of Accounting
Foundations of Quantitative Research Techniques and Statistics
Foundations of Marketing
Foundations of Business Integration and Strategic Management
Foundations of Business Finance
Foundations of Macroeconomics
Foundations of Microeconomics

ONLINE MBA CORE COURSES

GMBA 601 Managerial Accounting
3 credits
Prerequisite: Foundations of Accounting
A study of the accounting information utilized in the control and evaluation of managerial decision making. The focus is cost accumulation, cost allocation and control. Critical attention is placed upon budgeting, cost-volume-profit relationships, and variance analysis as they relate to production, working capital management, and marketing decisions.

GMBA 631 Organizational Culture, Creativity and Change
3 credits
Prerequisite: Foundations of Business Integration and Strategic Management
The course addresses the application of the behavioral sciences to management. The focus is on the analysis of structure and behavior in work organizations as well as classical organizational theory.

GMBA 641 Operations and Supply Chain Management
3 credits
Prerequisite: Foundations of Quantitative Research Techniques and Statistics
The course is designed to introduce students to the principles of operations and supply chain management and their application in decision making. The topics covered include logistics, transportation, inventory management, warehousing, materials management, global supply, demand management, project management, e-commerce, finance, and network design.

GMBA 651 Marketing Management
3 credits
Prerequisites: Foundations of Marketing
An examination of the marketing system and the use of various marketing applications such as marketing research, advertising research, and consumer behavior to assist the marketing manager in the major decision areas of targeting, product planning, channels of distribution, personal selling, pricing, promotion, branding, and development of integrated marketing programs.

GMBA 661 Financial Management
3 credits
Prerequisites: Foundations of Quantitative Research Techniques and Statistics and Foundations of Business Finance
A study of risk and risk management, including advanced analysis of the investment decision using the Markowitz portfolio model and the capital asset pricing model. Other areas of study include the financing and dividend decisions, sources of short and long-term capital, and current asset management.

GMBA 686 Leadership and Business Ethics
3 credits
Prerequisite: Foundations of Business Integration and Strategic Management
A study of leadership theory and how it impacts relationships in the organization and organizational performance. This course will provide a critical investigation of the ethical issues associated with decision making.

GMBA 736 Human Resource Management
3 credits
Prerequisite: None
The knowledge, skills, and abilities of the workers in a firm are its most valuable resource. This course helps students recognize the strategic importance of human resource management. The student will explore contemporary techniques of resource analysis, testing, recruiting, selection, training, appraisal, and compensation planning, and will integrate these techniques with the strategic focus of the firm.

GMBA 799 Business Policy and Strategy
3 credits
Prerequisite: Open only to students who are in their final semester of Online MBA course work and Foundations of Macroeconomics and Foundations of Microeconomics
In this course, the student will apply functional expertise to actual strategic issues. The students will be challenged to assess real managerial problems, to integrate all of the skills developed in the MBA curriculum, and to develop well-reasoned, innovative, and practical solutions to these problems.

ONLINE MBA ELECTIVE COURSES

GMBA 735 Employee Relations and Employment/Labor Law
3 credits
Prerequisite: GMBA 631 – Organizational Culture, Creativity and Change
A survey of labor law issues designed to give the student a fundamental, practical, working knowledge of the impact of various federal, state and local laws on the workplace The distinctive nature of management of a unionized workforce will also be studied focusing upon union avoidance, certification and decertification elections, collective bargaining, arbitrations, and other elements of employee relations.

GMBA 752 Consumer Behavior
3 credits
Prerequisite: GMBA 651 – Marketing Management
Examines the social and psychological influences on individual, household, and organizational buyer behavior and explores models of buyer behavior and consumer research by applying them to marketing decision-making processes.

GMBA 764 Investments
3 credits
Prerequisite: GMBA 661 – Financial Management
A survey of financial instruments and financial markets focusing on the risk and return characteristics of such financial instruments as stocks, bonds, options, futures, tax shelters, real estate, and precious metals.

GMBA 774 Strategic Management
3 credits
Prerequisites: Foundations of Business Integration and Strategic Management
A study of how the organization plans for its long term survival based on analysis of the impact of changes in the economic, social, legal, competitive, and technological environments. Uses of long range strategic planning for competitive advantage are examined and discussed.

GMBA 796 MBA Internship
1 credit
Prerequisite: Permission of the MBA Program Director.
Students are placed in work roles related to their professional interests and supervised by both a faculty member and a field coordinator. The student applies knowledge and skills learned throughout the curriculum. The student will maintain a journal, submit a paper reflecting on the work experience in the context of the academic experience, and make a final presentation. Students are expected to work a minimum of 50 hours for a total of 1 credit. (50 hours per credit hour).

GMBA 797 MBA Internship
3 credits
Prerequisite: Permission of the MBA Program Director.
Students are placed in work roles related to their professional interests and supervised by both a faculty member and a field coordinator. The student applies knowledge and skills learned throughout the curriculum. The student will maintain a journal, submit a paper reflecting on the work experience in the context of the academic experience, and make a final presentation. Students are expected to work a minimum of 150 hours for a total of 3 credits.

Business Administration (MBA) – Business Analytics

Director: Celene M. Kalivoda, DBA

INTRODUCTION

Gannon University is a student-oriented teaching university. This philosophy guides our approach to curriculum design, teaching, and advising. We recognize and understand the dramatic changes ongoing in the world of business.

The MBA in Business Analytics program is designed to offer students a contemporary learning experience by infusing the application of technology and data analysis into coursework covering the functional areas of business. Students will apply the appropriate methodologies for analyzing data in the context of a specific business perspective in courses such as business forecasting, financial modeling, and data-driven strategic planning. With a focus on utilization of today's modern business tools to analyze data and make data-driven decisions in any of the functional areas of business, graduates of the MBA in Business Analytics will be prepared for employment across a broad spectrum of disciplines, including marketing, supply chain management, human resources and finance. Consistent with Gannon's entrepreneurial spirit, the MBA in Business Analytics will also include coursework designed to develop a student's entrepreneurial mindset, identify, and assess business opportunities and even finance a potential venture.

Gannon University's MBA program was founded in 1970 and our experience as the region's first and largest graduate school of business has taught us some important lessons. Simply having a master's degree, regardless of the type of degree or apparent status of the degree-granting institution, is no assurance of success. To succeed in business, individuals need applicable skills, an understanding of the complex business environment and an appreciation for the value of work itself. Our network of over 1,400 MBA alumni is a proud testament to Gannon's ability to make success happen for its graduate students. Gannon MBA Alumni include Presidents/CEO's, Vice Presidents, CFO's, Treasurers, and Managing Partners. In addition, over 60 have earned advanced degrees, including doctorates from some of the most prestigious academic institutions in North America (Indiana University, University of Michigan and University of Pennsylvania's Wharton School, Stanford University to name a few). More than 45 Gannon MBA's are currently teaching in colleges and universities.

OUTCOMES OF THE MBA IN BUSINESS ANALYTICS PROGRAM

Upon successful completion of the program requirements, students will be able to:

- Analyze data and apply managerial skills to identify business problems, manage risk, or identify and create new business opportunities and propose data-driven recommendations or solutions
- Display competence with oral, written and graphical communications, appropriate for professional business environments
- Demonstrate appropriate leadership skills while recognizing and assessing moral and ethical components and complexity of challenges faced by global businesses
- Translate and communicate results of business analytic projects into action that meets a desired outcome

ACCREDITATION

The Master of Business Administration program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP), a global accreditation body for business schools.

STEM CERTIFIED

The Gannon University MBA in Business Analytics is a STEM Designated Degree Program. This designation makes it possible for international graduates to remain in the United States for an additional 24 months after graduation and receive training through work experience.

ADMISSION REQUIREMENTS

For all students:

- A Bachelor's Degree in any discipline from an accredited college or university
- A cumulative undergraduate GPA of 3.0 or higher.
- If your undergraduate GPA is less than a 3.0 on a 4.0 scale, there are two options:
  - Take the GMAT and achieve a score of 1050 using the formula: 200 x (undergraduate GPA) + GMAT score.
  - GMAT requirement may be waived based on professional experience following the Program Director's review of application
- A completed application for admission
- Official transcripts from all prior institutions
- TOEFL scores if English is not a first language

NOTE: For Global Students applying from India: Business and Business related 3-year degrees with relevant GPA and other requirements from "NAAC" grade B or higher accredited universities in India, subject to taking prerequisite courses as needed, are considered for Admission to the MBA in Business Analytics.

CURRICULUM

The Gannon MBA in Business Analytics is a professional degree program. Our students have varied academic and professional backgrounds. For MBA candidates whose undergraduate degree is in a field other than Business and/or those who have not obtained the prerequisite competencies required for the core courses, Gannon has partnered with Peregrine Academic Services for students to take Academic Leveling Courses (ALC).

An ALC is a course that provides a summary or overview of key concepts related to competencies required as foundational knowledge for entry into the program. As a program prerequisite, the ALC sequence ensures students have demonstrated an appropriate level of competency in order to maximize success with the MBA core coursework. For the Gannon University MBA program, the ALCs will be completed by all students holding a Bachelor's degree in a non-business field.

The curriculum contains 30 credits of required courses. The ALCs are not credit bearing courses.

The following competencies, obtainable through ALCs if not part of the students' undergraduate degree requirements, **must be met before starting the MBA in Business Analytics core curriculum:**

- Foundations of Accounting
- Foundations of Quantitative Research Techniques and Statistics
- Foundations of Marketing
- Foundations of Business Integration and Strategic Management
- Foundations of Business Finance
- Foundations of Microeconomics

Any students who do not wish to take Peregrine ALCs but need foundational knowledge before starting the core curriculum for the MBA in Business Analytics can obtain the requisite competencies by enrolling in undergraduate coursework as outlined below. Students must pass each requirement with a grade of B or better to meet the foundational requirements. Note: Credits earned via these courses do NOT count towards the 30 total credit hours required to earn the MBA in Business Analytics degree.

- Foundations of Accounting…must take BCOR 214 and BCOR 215*
- Foundations of Quantitative Research Techniques and Statistics… must take MATH 115 and BCOR 220
- Foundations of Marketing…must take BCOR 240
- Foundations of Business Integration and Strategic Management… must take BCOR 250
- Foundations of Business Finance…must take BCOR 311
- Foundations of Microeconomics…must take BCOR 111

Note: *If students pursue the undergraduate coursework option to fulfill the competency requirements to enter the MBA program, they will need permission from the Program Director to waive specific prerequisites.

Gannon MBA in Business Analytics Core Courses (30 credits total, semester courses are *traditionally* offered are indicated)

GMBA 615: Technological Environment of Business – Fall and Spring
GMBA 625: Data Driven Strategic Planning and Decision-Making – Fall and Spring
GMBA 635: Financial Management and Modeling – Fall and Spring
GMBA 645: Strategic Global Marketing and Analytics – Spring
GMBA 655: Socially Responsible Leadership – Fall and Summer
GMBA 665: Operations and Supply Chain Analytics – Spring
GMBA 675: Managing Organizational Behavior and Dynamics – Spring and Summer
GMBA 685: Organizational Communication and Data Visualization Fall GMBA 695: Entrepreneurship in a Technological Environment – Fall
GMBA 725: Integrated Business Strategy and Analytics – Fall and Spring (Course must be taken during the student's last semester in the MBA in Business Analytics Program)

STANDARD MBA GRADING SCALE

Numerical Grade	Letter Grade	Grade Points (per credit hour)
97+	A+	4.0
93-96.99	A	4.0
90-92.99	A-	3.7
87-89.99	B+	3.3
83-86.99	B	3.0
80-82.99	B-	2.7
77-79.99	C+	2.3
70-76.99	C	2.0
Below 70	F	0

4+1 MBA IN BUSINESS ANALYTICS DEGREE PROGRAM

The 4+1 MBA in Business Analytics Degree Program is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate degree and an MBA within a five year period. Students from any major may apply and should do so before they begin their junior year. Working with both the undergraduate advisor and the MBA Business Analytics Program Director, the student will customize a schedule in which they will take graduate courses during their junior or senior year. Students who successfully complete these courses may apply to continue into the MBA-Business Analytics program to complete the remaining credits. Applicants to the program must have a 3.0 undergraduate GPA. Retention in the program requires that the student maintain a minimum of a 3.0 GPA for their undergraduate studies.

INTERNATIONAL STUDENTS

International students who do not wish to take Peregrine ALCs but need foundational knowledge before starting the core curriculum for the MBA in Business Analytics can obtain the requisite competencies by enrolling in undergraduate coursework. See section above "Curriculum" for the undergraduate course equivalents for the ALC's required in the program. As noted, students must pass each requirement with a grade of B or better and credits earned via these undergraduate courses do NOT count towards the 30 total credit hours required to earn the MBA in Business Analytics degree.

INTERNSHIPS

Gannon MBA students may, with permission of the MBA Program Director, accept placements in fields that are related to their academic studies. Students may take a 1 or 3 credit internship with the permission of the MBA Program Director, provided the experience adds to the student's knowledge and ability in their chosen field of study.

COURSE DESCRIPTIONS

FOUNDATIONAL COURSES - ACADEMIC LEVELING COURSES

Below competencies, met through the Peregrine Academic Level Courses or through undergraduate coursework, are prerequisites for all GMBA courses in the MBA in Business Analytics. All competencies must be met before students can begin coursework. See Peregrine Academic Services Website for Descriptions of the Academic Leveling Course Modules (non-credit bearing) below:

Foundations of Accounting
Foundations of Quantitative Research Techniques and Statistics
Foundations of Marketing
Foundations of Business Integration and Strategic Management
Foundations of Business Finance
Foundations of Microeconomics

CORE COURSES

GMBA 615 Technological Environment of Business

3 credits; Prerequisite: None

In this course, students will learn how to identify external variables and technological factors that influence business performance and operations. Students will explore the transformational needs of the business's operating strategy in response to technological changes, with the intent of harnessing change for the firm's growth. The course will also involve the analysis and development of robust business models sensitive to fluctuations in the environment. Case studies relating to successful and bankrupt companies, whose status was directly influenced by changes in the technological environment will be analyzed.

GMBA 625 Data Driven Strategic Planning and Decision-Making
3 credits; Prerequisite: None
Businesses face shifts in regulation, customer expectations and technology, requiring professionals to adapt quickly and effectively to remain competitive. This course examines the technologies, information, and analytics that are important for effective management and control of modern firms. With a focus on dynamic decision making and optimization approaches for complex decisions as well as strategies for data driven decision making, you'll learn to look at company data from a deeper perspective and use the data to make decisions that will strengthen your competitive position in the marketplace.

GMBA 635 Financial Management and Modeling
3 credits
Prerequisites: GMBA 615 and GMBA 625
This course applies analytical techniques and modeling to the study of corporate finance and capital markets. The course emphasizes the cost of capital, forecasting, capital budgeting, sources of short and long term capital, corporate distributions, and working capital management. Students will be immersed in real-life financial data analytics through the use of data mining and associated tools, such as SAP/SAS and Microsoft Excel. In addition, students' analytical skills will be honed using techniques such as scenario and sensitivity analysis, optimization and regression.

GMBA 645 Strategic Global Marketing and Analytics
3 credits
Prerequisites: GMBA 615 and GMBA 625
This course exposes students to analytical tools, models and processes applied by business practitioners to develop data-driven decisions in today's complex and dynamic marketing environment. Students will synthesize data from various sources such as marketing research, social media, CRM processes and ERP solutions using data mining and web scraping as well as primary and secondary data-gathering methods. Students will develop insights from the data utilizing statistical techniques as well as sentiment and qualitative data analysis. They will apply their insights to assess consumer and business-purchasing behaviors in order to generate strategic marketing plans through intelligence-grounded decisions. This knowledge will be applied in real-world situations in the development of situation analyses, segmentation, value-proposition development, positioning, targeting, branding, promotional planning and development of key performance indicators for control and improvement processing.

GMBA 655 Socially Responsible Leadership
3 credits
Prerequisites or Concurrently with GMBA 615 and GMBA 625
This course exposes students to the fundamental concepts of business ethics within the context of leadership theories and thought. The course examines the dynamic and complex technological environment of business and considers the need for leaders to effectively manage ethically challenging situations while balancing the needs and expectations of multiple corporate stakeholders. Topics that will be examined include effective leadership behavior, leading change and innovation, participative leadership and empowerment, leadership traits and skills, contingency theories and adaptive leadership, dyadic relations and followers, charismatic and transformational leadership, ethical, servant, spiritual, and authentic leadership, and cross-cultural leadership and diversity.

GMBA 665 Operations and Supply Chain Analytics
3 credits
Prerequisites: GMBA 615 and GMBA 625
This course is designed to introduce students to the principles of operations and supply chain management, their application in decision-making, and an understanding of the available technology. Students will be introduced to frameworks and ideas that provide understanding into real-world business challenges, utilizing methods and analytical tools for tackling the challenges both quantitative and qualitatively. The goal of this course is for students to understand how operational decisions influence the overall value chain in both financial and non-financial metrics. The topics covered include logistics, transportation, inventory management, warehousing, materials management, global supply, demand management, project management, e-commerce, finance, and network design.

GMBA 675 Managing Organizational Behavior and Dynamics
3 credits
Prerequisites or Concurrently with GMBA 615 and GMBA 625
This course provides a comprehensive analysis of individual and group behavior effective communications in an organization. Emphasis will be on the organizational behavior and communication concepts and research findings related to the major challenges and opportunities managers face in the complex and ever changing technological environment of business. Topics that will be examined include job satisfaction, organizational commitment, motivation, conflict, trust, work teams, emotional intelligence, communication in organizations, decision making, power, organizational culture, managing organizational change, organizational structure and design, organizational change, and organizational innovation and creativity.

GMBA 685 Organizational Communication and Data Visualization
3 credits
Prerequisites: GMBA 615 and GMBA 625
This course studies the use of analytics and technology as a mission-critical component of an organization. Visualizations are the graphical depictions of data that improve comprehension, communication, and decision making. Graphical methods for specialized data types will be presented including charts, tables, graphics, effective presentations, multimedia content, and animation. The human process of encoding visual and textual information will be discussed in relation to selecting the appropriate method for the display of quantitative and qualitative data under various circumstances within and outside the organization and practiced to gain proficiency in oral, written and digital communication.

GMBA 695 Entrepreneurship in a Technological Environment
3 credits
Prerequisites: GMBA 615 and GMBA 625
Today, business professionals must be aware and responsive to the way that technology both changes existing organizations and enables the development of new ones. This course will explore the fundamentals of entrepreneurship following a strategic path from ideation, validation, market selection, intellectual property, funding, launch and profitability. The impact and implications of technology will be examined; specifically, data that entrepreneurs will want/need and how technology impacts entrepreneurial decisions. Upon completion, students will have a greater understanding of how technology, product and business development are linked together in order to create successful business opportunities in a global business ecosystem with acquired skillsets in technologies and data analytics used to market, advertise, increase market share and deliver products and services to end users.

GMBA 725 Integrated Business Strategic and Analytics
3 credits
Course must be taken during the student's last semester in the MBA in Business Analytics Program
This integrative course enables students to synthesize and apply all the knowledge, skills and abilities learned in the Business Analytics MBA Program. Students will complete a culminating project in which they will develop and present data-driven strategic plan to improve the performance and sustainability of an organization. The primary goal of this course is to challenge students to apply powerful quantitative strategies and techniques to analyze business and market data to improve decision outcomes across all the functional areas of an organization.

GMBA 796 MBA Internship
1 credit
Prerequisite: Permission of the MBA Program Director.
Students are placed in work roles related to their professional interests and supervised by both a faculty member and a field coordinator. The student applies knowledge and skills learned throughout the curriculum. The student will maintain a journal, submit a paper reflecting on the work experience in the context of the academic experience, and make a final presentation. Students are expected to work a minimum of 50 hours for a total of 1 credit. (50 hours per credit hour).

GMBA 797 MBA Internship
3 credits
Prerequisite: Permission of the MBA Program Director.
Students are placed in work roles related to their professional interests and supervised by both a faculty member and a field coordinator. The student applies knowledge and skills learned throughout the curriculum. The student will maintain a journal, submit a paper reflecting on the work experience in the context of the academic experience, and make a final presentation. Students are expected to work a minimum of 150 hours for a total of 3 credits. (50 hours per credit hour).

Business Essentials Certificate – Online

Director: Celene M. Kalivoda, DBA

INTRODUCTION

Gannon University is a student-oriented teaching university. This philosophy guides our approach to curriculum design, teaching, and advising. We recognize and understand the dramatic changes ongoing in the world of business. Our approach is to pay careful attention to each student, challenge them to grow, and help them to reach their own personal and career objectives. Courses in the Business Essentials Certificate are rigorous and challenging by design, but the faculty is prepared to work with each student to build the skills needed for the business world of the 21st century.

The purpose of the Gannon University Business Essentials Certificate Program is to provide a flexible program to students seeking an opportunity for more in-depth business knowledge and/or seeking career advancement. This Graduate Certificate is a 12-credit program that can be completed in one year. Courses are delivered online, in a 7-week format.

Students who complete the Online Business Essentials Certificate can continue into the Online MBA program. All 12 credits of required coursework from the Certificate will transfer towards the 30 credit requirements of the Online MBA program.

CERTIFICATE OUTCOMES

Upon successful completion of this certificate, students will be able to:

1. Critically evaluate evidence that influences decision-making in firms
2. Articulate management issues, ideas, theories, and solutions to a range of audiences in written and oral form
3. Apply knowledge to theory in problem-solving through the application of appropriate business theories, principles and data
4. Explain the relationship among the core, functional areas of business and the context of their roles in today's business environment

ADMISSION REQUIREMENTS

For all students:

- A Bachelor's Degree in any discipline from an accredited college or university
- A cumulative undergraduate GPA of 3.0 or higher.
- If your undergraduate GPA is less than a 3.0 on a 4.0 scale, there are two options:
  - Take the GMAT and achieve a score of 1050 using the formula: 200 x (undergraduate GPA) + GMAT score.
  - GMAT requirement may be waived based on professional experience following the Program Director's review of application
- A completed application for admission
- Official transcripts from all prior institutions
- TOEFL scores if English is not a first language

ACCREDITATION

This graduate certificate is recognized by the Business Administration program accreditation from the Accreditation Council for Business Schools and Programs (ACBSP), a global accreditation body for business schools.

CURRICULUM

The Gannon Online Business Essentials certificate is a professional program. Students in the program begin studies with varying academic backgrounds and professional experience. For Online certificate candidates whose undergraduate degree is in a field other than Business and/or who have not obtained the prerequisite skills required for the required courses in the certificate, Gannon has partnered with Peregrine Academic Services for students to take Academic Leveling Courses (ALC) to obtain the prerequisite/ foundational competencies.

An ALC is a course that provides a summary or overview of key concepts related to competencies required as foundational knowledge in the program. As a program prerequisite, the ALC sequence ensures that students have demonstrated an appropriate level of competency in order to maximize success with the online certificate coursework. For the Gannon University Online certificate program, the ALCs will be completed by students holding a Bachelor's degree in a non-business field. Upon successful completion of the ALCs, students may progress into the required courses.

Online Academic Leveling Modules (5 required)
Required for non-business bachelor's degree holders only; Offered through Peregrine Academic Services:

- Foundations of Accounting
- Foundations of Quantitative Research Techniques and Statistics
- Foundations of Marketing
- Foundations of Business Integration and Strategic Management
- Foundations of Business Finance

Gannon Online Business Essentials Certificate
Required Courses

GMBA 601	Managerial Accounting
GMBA 651	Marketing Management
GMBA 661	Financial Management
GMBA 774	Strategic Management

STANDARD GRADING SCALE

Numerical Grade	Letter Grade	Grade Points (per credit hour)
97+	A+	4.0
93-96.99	A	4.0
90-92.99	A-	3.7
87-89.99	B+	3.3
83-86.99	B	3.0
80-82.99	B-	2.7
77-79.99	C+	2.3
70-76.99	C	2.0
Below 70	F	0

ACADEMIC LEVELING COURSES

See Peregrine Academic Services Website for Descriptions of the Academic Leveling Course Modules below:
Foundations of Accounting
Foundations of Quantitative Research Techniques and Statistics
Foundations of Marketing
Foundations of Business Integration and Strategic Management
Foundations of Business Finance

COURSE DESCRIPTIONS

ONLINE MBA CORE COURSES

GMBA 601 Managerial Accounting
3 credits
Prerequisite: Foundations of Accounting
A study of the accounting information utilized in the control and evaluation of managerial decision making. The focus is cost accumulation, cost allocation and control. Critical attention is placed upon budgeting, cost-volume-profit relationships, and variance analysis as they relate to production, working capital management, and marketing decisions.

GMBA 651 Marketing Management
3 credits
Prerequisites: Foundations of Marketing
An examination of the marketing system and the use of various marketing applications such as marketing research, advertising research, and consumer behavior to assist the marketing manager in the major decision areas of targeting, product planning, channels of distribution, personal selling, pricing, promotion, branding, and development of integrated marketing programs.

GMBA 661 Financial Management
3 credits
Prerequisites: Foundations of Quantitative Research Techniques and Statistics and Foundations of Business Finance
A study of risk and risk management, including advanced analysis of the investment decision using the Markowitz portfolio model and the capital asset pricing model. Other areas of study include the financing and dividend decisions, sources of short and long- term capital, and current asset management.

GMBA 774 Strategic Management
3 credits
Prerequisites: Foundations of Business Integration and Strategic Management
A study of how the organization plans for its long-term survival based on analysis of the impact of changes in the economic, social, legal, competitive, and technological environments. Uses of long-range strategic planning for competitive advantage are examined and discussed.

Clinical Mental Health Counseling

Master of Science (M.S.) Degree

Director: Rebecca A. Willow, Ed.D.

INTRODUCTION

Gannon University offers the Master of Science in Clinical Mental Health Counseling. The M.S. in Clinical Mental Health Counseling is a 60 credit-hour program accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).

The program is designed to prepare individuals for careers in a variety of professional counseling settings such as outpatient mental health, human service agencies, college and university counseling, and residential treatment. The curriculum includes a blend of counselor training experiences designed to provide the skills and knowledge necessary to become a professional counselor. The program prepares graduates to pursue National Counselor Certification (NCC) and licensure as a Professional Counselor (LPC).

MISSION STATEMENT

The mission of Gannon University's Clinical Mental Health Counseling Program is to educate and train students to become professional counselors who are committed to the wellness of individuals, families, groups, and the greater community. The philosophy of the program focuses on the development of the competencies required of professional counselors. The program objectives are (a) enhancing students' knowledge of counseling theory and concepts; (b) developing strategies to facilitate human growth and development over the lifespan; (c) providing skills and training requisite of generalist entry-level counseling practitioners; (d) developing multicultural competencies; (e) promoting the development of sound legal and ethical decision-making skills; and (f) preparing individuals for national certification and professional licensure. Although students typically are drawn from the regional area, applicants with diverse backgrounds and from outside the region are encouraged to apply. Students are guided to embody and contribute to the spirit of diversity to which the program and profession are committed.

STUDENT LEARNING OUTCOMES

Learning outcomes are statements of knowledge, skills and abilities an individual student possesses and can demonstrate upon completion of a program of study. Students graduating from the Clinical Mental Health Counseling Program at Gannon University are expected to achieve the following learning outcomes:

1. Demonstrate understanding of the ethical, legal and professional spheres of counselor roles, responsibilities, and identity.
2. Demonstrate understanding of the complexities of social and cultural contexts for individuals and their implications for relationships.
3. Demonstrate understanding of human development across the lifespan and its significance for counseling relationships and strategies.
4. Demonstrate understanding of career development appropriate to diverse needs and life experiences.
5. Demonstrate counselor characteristics, behaviors, interviewing, and counseling skills that influence the helping relationship.
6. Demonstrate understanding of the dynamics, strategies, and conditions associated with group work effectiveness
7. Demonstrate competent use of assessment and diagnosis of mental and emotional disorders and conditions.
8. Demonstrate competent use of research methods, needs assessment, and program evaluation skills important to the counseling profession.
9. Demonstrate case conceptualization, diagnosis, and treatment planning skills within the context of clinical mental health counseling.
10. Demonstrate self-awareness and self-development through engagement in active learning and reflectivity.

DIVERSITY STATEMENT

The Clinical Mental Health Counseling Program establishes and supports an environment that values the diverse and unique nature of human experiences and backgrounds. We enrich our personal and professional lives by exemplifying Gannon University's call to demonstrate professional respect for the dignity of every person.

PROGRAM ADMISSION REQUIREMENTS

Students must have a bachelor's degree from an approved institution. A complete application for admissions includes: a resume, three letters of recommendation from appropriate professionals, an essay, and participation in an admissions interview. To be admitted into the program, applicants must have a minimum grade point average of 2.8 in undergraduate coursework. Students must also have Pennsylvania Child Abuse History clearance and the Pennsylvania State Police Criminal Record Check (ACT 33 and ACT 34 clearances) dated within a year of application. Formal admittance to the program is required before enrolling in courses. Program director approval may be given for students to transfer up to 12 semester hours of credits earned at a CACREP accredited program. Program director approval may be given for students to transfer up to six semester hours of credits earned at a non-CACREP accredited institution, subject to Gannon University Graduate program policy.

International applicants must provide evidence of successful achievement on the TOEFL of 95 and/or 7.0 on the International English Language Testing System (IELTS). Examination subscores will also be considered as important to overall applicant qualification. A 500-word writing sample in English and evidence of successful completion of an undergraduate course taught in English in the United States or Canada are required.

Undergraduate Course Work
Students enter the Clinical Mental Health Counseling Program from a variety of undergraduate backgrounds. Course work in human services, psychology, statistics, and human development is helpful. Several courses in psychology are recommended.

ACCREDITATION

The Clinical Mental Health Counseling Program is accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). CACREP is the professional accrediting body for counselor education and promotes the professional competence of counseling and related practitioners through preparation standards, excellence in program development, and accreditation of professional preparation programs. For further information on accreditation, contact: CACREP, 1001 North Fairfax Street, Suite 510, Alexandria, VA 22314. Phone: (703) 535-5990. Website: www.cacrep.org.

CURRICULUM

I. Master's Degree in Clinical Mental Health Counseling Core Courses

1. Foundations of Professional Counseling Sequence (12 credits)

GCOU 605	Group Dynamics	3
GCOU 608	Human Development Over the Life Span	3
GCOU 627	Professional Counseling	3
GCOU 648	Counseling Strategies and Techniques	3

2. Counseling Core I Sequence (12 credits)

GCOU 603	Research Methodology	3
GCOU 610	Counseling and Personality Theories	3
GCOU 613	Appraisal in Counseling	3
GCOU 625	Multicultural Issues in Counseling	3

3. Counseling Core II Sequence (15 credits)

GCOU 612	Family Systems	3
GCOU 622	Career Development and Counseling	3
GCOU 631	Diagnosis and Treatment Planning	3
GCOU 642	Child and Adolescent Counseling	3
GCOU 690	Seminar in Counseling (GCOU 690 and 691 must be completed after the Counseling Core II sequence and prior to or concurrent with enrolling in GCOU 651)	3
GCOU 691	Counselor Preparation	0

4. Advanced Core Sequence (12 credits)

GCOU 649	Mental Health Counseling	3
GCOU 660	Counseling and Spirituality	3
GCOU 667	Crisis and Disaster Counseling	3
GCOU 668	Addictions Counseling	3

5. Supervised Counseling Experience (9 credits)

GCOU 650	Supervised Practicum	3
GCOU 651	Supervised Internship	6

II. Comprehensive Examination
Each candidate will be required to pass a comprehensive examination during GCOU 691 Counselor Preparation.

SPECIAL FEATURES

Clearances
Clinical Mental Health Counseling Program applicants must present an acceptable Pennsylvania Child Abuse History clearance and an acceptable Pennsylvania State Police Criminal Record Check (ACT 33 and ACT 34 clearances). Clearances must be dated within a year of application. Applicants with documented criminal or abuse records will be evaluated on an individual basis for acceptance in the program.

Licensure
Professional counselors are licensed by the Commonwealth of Pennsylvania State Board of Social Workers, Marriage and Family Therapists, and Professional Counselors. The overall goal of the Clinical Mental Health Counseling Program is to provide academic preparation for graduates to become Licensed Professional Counselors. There are additional postgraduate clinical supervision requirements in order to attain licensure. For further information on licensure, contact: State Board of Social Workers, Marriage and Family Therapists, and Professional Counselors, P. O. Box 2649, Harrisburg, PA 17105-2649 Phone: (717) 783-1389.

National Certification
The National Board for Certified Counselors (NBCC) administers the National Counselor Examination (NCE). Gannon University sponsors the GSA-NCC program for students. Graduates of CACREP accredited programs receive their NCC soon after graduation from the program. The NCE is also used for LPC licensure in Pennsylvania. Graduates are encouraged to pursue both national certification and licensure. For further information on NBCC, contact: NBCC 33 Terrace Way, Greensboro, NC 27403. Phone: (336) 547-0607. Website: www.nbcc.org.

Post-Graduate Coursework
Individuals who have completed a Master's degree in counseling may take courses in the Clinical Mental Health Counseling Program in order to meet the requirements for licensure. All post-graduate students must apply to the Office of Graduate Admissions and be approved by the program director.

COURSE DESCRIPTIONS

GCOU 603 Research Methodology
3 credits
This course provides an understanding of principles and methods of counseling research and program evaluation including quantitative and qualitative analysis. Students will learn to critically evaluate counseling research, literature, consider ethical issues relevant to counseling research, and identify how research and program evaluation can improve counseling effectiveness. It is strongly recommended that students have taken an undergraduate statistics course.

GCOU 605 Group Dynamics
3 credits
This course provides an understanding of group counseling, group dynamics, types of groups, and group leadership. Students will experience integrative learning by participating in a developmental process group. Guidelines for group treatment, ethics, and diversity will be discussed.

GCOU 608 Human Development Over the Life Span
3 credits
This course provides an understanding of human growth and development over the life span including theoretical approaches and issues relevant to human services. It emphasizes physiological, cognitive, social, emotional, personality, spiritual, and moral development from conception to death. Legal and ethical issues related to human development, as well as diversity issues, will be reviewed in relation to human services.

GCOU 610 Counseling and Personality Theories
3 credits
This course provides an overview of the major theories in counseling and psychotherapy. The theoretical and historical backgrounds will be reviewed along with current practices. The strengths, limitations, and appropriate use of major counseling theories will be reviewed. This course will help students consider their own evolving theoretical orientation applicable to professional counseling settings and diverse client populations.

GCOU 612 Family Systems
3 credits
This course provides an understanding of family systems theory and several major approaches to family therapy. Couples therapy and parent training will also be reviewed. Students will gain an understanding for assessing, conceptualizing, and intervening with families.

GCOU 613 Appraisal in Counseling
3 credits
This course provides an understanding of individual and group approaches to assessment and evaluation in professional counseling. Emphasis is placed on all aspects of clinical assessment including risk assessment, personality assessment, assessing achievement, intelligence assessment, and career testing. Students will have the opportunity to administer selected assessment instruments.

GCOU 622 Career Development and Counseling
3 credits
This course provides an introduction to the theoretical bases of career development and individual career decision making. It incorporates career assessment instruments and techniques for evaluating individuals relevant to career development, planning and placement. Emphasis is placed on understanding career, educational and labor market information, technology in career counseling, legal and ethical standards, multicultural and gender bias as well as an appreciation for career trends across the life-span.

GCOU 625 Multi-Cultural Issues in Counseling
3 credits
This course provides an overview of the theories of multicultural counseling and development. Issues related to social and cultural diversity will be examined as well as guidelines for developing multicultural competencies. An experiential focus is designed to increase sensitivity in counseling.

GCOU 627 Professional Counseling
3 credits
This course provides an introduction to the field of professional counseling. Multiple aspects of counselor professional identity and the specific role of clinical mental health counselors will be explored. Counselor roles, legal and ethical standards, organizational affiliations, and credentialing will be reviewed. Counselor preparation and training as well as professional development will be explored.

GCOU 631 Diagnosis and Treatment Planning
3 credits
This course provides an understanding of diagnosis according to the DSM and the practice of treatment planning. Emphasis is placed on differential diagnosis, the etiologies of mental and emotional disorders, as well as the cultural, contextual, and ethical issues related to the development of a diagnosis and treatment plan. Students will demonstrate diagnostic and treatment planning skills.

GCOU 642 Child and Adolescent Counseling
3 credits
This course provides specialized knowledge and skills training in counseling children and adolescents. Students will learn to assess behavior and incorporate developmentally, culturally, ethnically, legally, and gender appropriate strategies and techniques to meet the needs of counseling children and adolescents. Students will examine various theoretical, behavioral, and play therapy techniques for counseling children and adolescents. Special emphasis will be placed on the diagnosis of mental and emotional disorders related to children and adolescents according to the current edition of the DSM.

GCOU 648 Counseling Strategies and Techniques
3 credits
This course provides training in the core counseling skills essential for the counseling relationship and effective treatment outcomes. Students receive supervised training through modeling, live observation, skill rehearsal, and video recording in the counselor training facilities.

GCOU 649 Mental Health Counseling
3 credits
This course will provide instruction and skills training in mental health strategies and techniques. Students will develop competencies in diagnosis and integrative treatment approaches for selected psychological conditions and behavior problems. Emphasis is placed on establishing a therapeutic relationship, case conceptualization, evidence-based treatment, and legal and ethical practice.

GCOU 650 Supervised Practicum
3 credits
Practicum provides preparation for internship through highly structured and supervised counseling practice. Students will demonstrate the basic competencies required of professional counselors, performing direct and indirect counseling services under supervision. 100 hours of counseling practice including individual on-site supervision and on-campus group supervision are required.

GCOU 651 Supervised Internship
6 credits
Internship provides 600 hours of supervised counseling experience in an appropriate mental health counseling setting. Students will perform direct and indirect counseling services under supervision. Emphasis is placed on counselor identity development, legal and ethical practice, and demonstration of multicultural and counseling competencies and case conceptualization. Students will receive individual on-site supervision and weekly on-campus group supervision.

GCOU 660 Counseling and Spirituality
3 credits
This course will focus on understanding how spirituality is naturally integrated into the practice of professional counseling. Spirituality, spiritual issues, spiritual diversity, and ethical concerns will be examined. Critical topics, such as illness, death and dying, suicide, and trauma will be explored. Students will review guidelines and competencies for integrating spirituality into the counseling relationship.

GCOU 667 Crisis and Disaster Counseling
3 credits
This course provides a comprehensive overview of how crises, disasters, and trauma-causing events impact the practice of professional counseling. Students will develop competencies relating to the assessment and counseling of persons experiencing trauma, crises, and/or disasters. Emphasis is placed on differentiating between normal and pathological functioning as well as understanding crises and disaster coordination, emergency response, and interdisciplinary engagement.

GCOU 668 Addictions Counseling
3 credits
This course will examine addictions and addictive behaviors including strategies for prevention, intervention, and treatment. Course topics include the etiology, assessment and treatment of addictions, substance abuse, and co-occurring disorders. Treatment strategies such as harm reduction and motivational interviewing will be examined.

GCOU 680-682 Special Topics in Clinical Mental Health Counseling
3-6 credits
Special courses developed from study interests in various aspects of clinical mental health counseling including supervised clinical experiences.

GCOU 688 Directed Studies
1-3 credits
A directed study provides the advanced counseling student the opportunity to pursue knowledge and training in areas of interest within the counseling profession. The student will demonstrate a thorough investigation and understanding of the selected topic.

GCOU 690 Seminar in Counseling
3 credits
This seminar reviews counselor preparation for certification and licensure. Legal and ethical standards of practice and consultation in professional counseling will be emphasized and reviewed. Current professional issues will be explored as a capstone program experience.

GCOU 691 Counselor Preparation – Comprehensive Examination
0 credits
Students will be required to pass a comprehensive exam. This exam should be taken the same semester as GCOU 690.

Computer and Information Science

Program Director: Joshua C. Nwokeji, Ph.D.

INTRODUCTION

Computer and Information Science (CIS) has been one of the most dynamic field in recent decades. With a growing demand for computing professionals, the program is designed to provide advanced studies for those who wish to continue preparation for effective participation in computing professions. The program provides continuing education in advanced subjects for CIS professionals who wish to stay abreast of the rapidly changing technological world. Emphasis is placed on the development of the student's skills for independent study and continued professional growth.

PROGRAM OUTCOMES

After any of the programs of study leading to the degree of Master of Science in Computer and Information Science, the graduate is able to:

1. Elicit, document, and analyze the requirements for software systems
2. Obtain a comprehension of the evolving technology and its ramifications
3. Identify, plan, and manage the schedule and risks for the activities involved in software-based systems development
4. Provide a research contribution or development of value to the profession, industry or society
5. Exhibit skills to support continued development and improvement of their professional abilities
6. Exhibit skills necessary to make ethical decisions as a moral and conscientious individual and as a citizen of their professions, their society, and their place of employment

DEGREE OFFERED

The program offers a Master of Science in Computer and Information Science (MS-CIS) degree. It is housed in the College of Engineering and Business.

ADMISSION REQUIREMENTS

1. An applicant must present a baccalaureate degree in computer science, information systems, information science, software engineering, or a related field from a regionally accredited institution with a GPA of at least 2.5/4.0.
2. Completed graduate application
3. Complete resume
4. Transcripts from all prior institutions
5. Three letters of recommendation
6. TOEFL scores if English is not the first language

Factors for consideration include work experience in related areas of CIS and letters of recommendation. A committee appointed by the department chairperson will review applications for admission.

ADMINISTRATION

Retention is contingent on maintaining at least a 3.0 grade point average (GPA). The course work is expected to be completed within two years for full-time students and within six years for part-time students. The degree requirements are at least thirty credit hours of study.

Each academic semester typically consists of fourteen weeks of instruction, including one week for final exams. Some courses follow a 15-week schedule. Lectures meet fifty-five minutes per week for each credit.

Although it is anticipated that many of the courses in the program would be offered in evening sessions, no special requirements for either the students or instructors will be made. The courses are scheduled as regular sessions and classes meet in rooms appropriate for the course being taught. Courses requiring the use of lab equipment as part of their instructional model are taught in computer teaching labs and may include an additional lab fee.

The University's policy is that a master's degree program must be completed within six years of taking the first course. Only the Program Director and/or the Dean can grant exceptions.

WAIVER OF COURSES

Students must complete the waiver process within the first semester of beginning coursework. The foundations-series courses can be waived. The foundations-series courses are listed below.

- GCIS 506 Obj.-Ori. Programming in Java
- GCIS 507 Data Structures
- GCIS 508 Database Management Systems
- GCIS 509 System Analysis and Design
- GCIS 510 Software Engineering
- GCIS 580 Programming in Unix
- GCIS 581 Introduction to Networks

Any of the foundations series courses may be waived in either of the following ways:

1. Waiver by Transcript

A waiver request is based upon previously completed undergraduate or graduate courses which are equivalent to the foundation course in question. The student must demonstrate the equivalency of the prior courses by completing a *Course Waiver Form* available in the CIS office. The form is to be completed and returned to the CIS

office. To waive a foundation course, the student must have taken the courses *within the last seven (7) years* and obtained *at least a grade of B*. Special circumstances may be considered where other factors demonstrate currency and proficiency in the subject. Transcript-based waiver notification may accompany admissions notification. Transcript waiver applications must be completed *by the end of the first semester* of enrollment to be applied to course waivers.

2. Waiver by Proficiency Examination
Students who are confident of and can substantiate a strong background in an area which is not reflected in their academic transcript (*i.e.*, the courses were taken more than 7 years prior to admission, or the student did not achieve the appropriate grade) may request challenge examination(s) to demonstrate their proficiency. Proficiency exams must be scheduled and taken *by the end of the first semester* of enrollment to be applied to course waivers. See the CIS Office for details.

PROJECT REQUIREMENT

Each graduate student is expected to conduct a directed research/development project or thesis for completion of the degree; (see Plans A and B below). To propose an independent project or thesis, the student requests a specific CIS faculty member as the project advisor to chair his/her review committee in agreement with the CIS faculty member. These are normally completed as part of the required GCIS 605 *Scholarship Seminar* course. Decisions about the topic, project advisor and the committee members are shared between the student and the review committee chair. The committee members participate in reviewing quality and content for the directed research project/thesis and its written component. These project proposals and formulation of graduate project/thesis committees must be completed prior to registration for any Thesis or Directed Research credits.

Proposal sessions are scheduled during the last weeks of each semester. Various communication channels are utilized to disseminate the procedure and deadline on signing up for proposal sessions. Students, who wish to register for GCIS 698/GCIS 799 credits for the coming semester, must follow the communicated procedure and deadline to be scheduled in one of the proposal sessions.

The directed research project/thesis advisor directs the student's work and determines when to recommend the manuscript for review by a faculty committee. The review committee is appointed by the usual academic approval sequence and consists of at least two full-time Gannon CIS faculty members familiar with the subject material and one optional member from outside the CIS department. The outside member can be from industry. The committee is responsible for supporting the student in their work and assessing the quality of the project. After final corrections are made in the project and/or supporting documentation, the student will give an oral defense of their work before the committee. The CIS faculty member who chairs the review committee becomes the student's academic advisor.

Plan A (Thesis):
The candidate is required to submit a 6-credit thesis as part of the 30-42 credits of graduate course work and to pass a final oral examination on the thesis material and related subjects. Individuals considering further doctoral graduate studies are recommended to pursue the thesis option. The content should represent a researched and creative expression of the student's advanced capability as a result of the graduate program. The thesis should be *proposed and approved prior* to the commencement of the thesis work. Proposals must be *approved prior* to registering for thesis credits.

Thesis students register for GCIS 799 *Thesis* when beginning the research effort and after having received agreement from a faculty member to be the chair of the student's research effort. While enrolled in GCIS 799 *Thesis*, the student will be required to satisfy other department-stipulated activities such as attendance at research seminars, participation in research presentations, and writing- or research-improvement seminars. Students who elect to complete a thesis apply three of their thesis credits as a graduate elective within their course of study.

Plan B (Directed Research):
The student is required to complete a 3-credit independent/team project and to pass a final oral examination covering the student's project area and related subject areas. The content of the independent/team project can be either (1) in-depth scholarship culminating in a publishable-quality manuscript or (2) study and development of a prototype-level application culminating in a publishable-quality technical report. The content should represent a researched and creative expression of the student's advanced capability as a result of the graduate program. The directed research project should be *proposed and approved prior* to the commencement of the independent/team project work. Proposals must be *approved prior* to registering for project credits.

Directed Research students register for GCIS 698 *Directed Research* when completing the research effort and after having received agreement from a faculty member to be the chair of the student's research effort. GCIS 699 *Directed Research* is used for larger, non-thesis research projects. While enrolled in GCIS 698 and GCIS 699 *Directed Research*, the student is required to satisfy other department-stipulated activities such as attendance at research seminars, participation in research presentations, and writing- or research-improvement seminars.

THE CURRICULUM PLAN

The MS-CIS is a professional degree program. Students may begin studies with a wide variety of academic and work backgrounds. The MS-CIS curriculum may range from 30-42 credits depending upon past experiences. Upon commencement of graduate studies, students choose to complete their course of study in one of the defined degree options: I*nformation Analytics (IA), or Software Engineering (SE).*

Courses are presented in three general categories:

- *Foundations Series:* From 0 to 12 credits of (foundations series) classes. The series is designed to bring all students up to the same preliminary level while commencing the common body of coursework. Foundation courses can be waived (or challenged) on the basis of academic and professional experience. Please contact the CIS Office with questions about completion of Foundations-Series equivalencies prior to starting the program.
- *CIS Core Courses:* 12-15 credits of required coursework regardless of the option chosen. Two courses are outlined below.
  - *Scholarship Seminar:* 3 credits of professional development work. This course focuses on topics providing foundations for success in advanced graduate work and in the workplace. Topics include communications, professional development and applied research methods.
  - *Project Series:* From 3 to 6 credits of directed research (GCIS 698/699) or thesis (GCIS 799) work. Students must have completed 12 credits of graduate work, have completed all prerequisites including a formal proposal of their project to register for their project work. Students are encouraged to begin developing and planning their project work well in advance of the semester in which they register for their directed research or thesis credits.
- *Option-specific Courses:* 15-18 credits of coursework focused on a particular applied area in computer and information science.

The student must complete 30-42 credits of graduate coursework. Students must maintain a cumulative grade point average of at least 3.0 for the duration of their master's degree program. A total of ten graduate level courses (500-level or higher), exclusive of foundations-series courses are required.

Master of Science in Computer and Information Science Options

The Master of Science in Computer and Information Science offers students three options, which allow the student to select a technology, analytical or a practical and applied focus for the application of computing technologies. These consist of Information Technology, Data Science and Software Engineering. Each option consists of 30 credits of graduate work beyond the foundations series, and each specifies its own foundations series courses. The specific courses of study for each option is described below.

COURSE OF STUDY FOR DATA SCIENCE (DS)

Data Science is a dynamic and fast-growing field at the interface of Statistics and Computer Science. The emergence of massive datasets containing millions or even billions of observations provides the primary impetus for the field. Such datasets arise, for instance, in large-scale retailing, telecommunications, astronomy, medical domain, volumes of documents and social media. The MS-CIS with Data Science option prepares students to understand major practice areas in data science. They can collect, organize and manage data, identify patterns in data using visualization, statistical analysis and data mining, develop actionable insight based on big data, communicate data analysis and findings to people across a broad range of industries. They meet the demand of careers including Data Engineer, Data Architect, Statistical Programmer, and Big Data Analysts.

In addition to the overall program outcomes, at the conclusion of the program of study, the DS-option graduate will be able to:

DS-1. Identify patterns in data using data mining techniques.
DS-2. Manage large-scale data and the practical issues surrounding how the data is stored, processed, and analyzed in the cloud
DS-3 Extract knowledge from large amounts of text data

CURRICULUM REQUIREMENTS

The Data Science Option requires 30 credits beyond 12 credits of foundations courses. Nearly all graduates from four-year Information Systems, Computer Science, Software Engineering and related programs are eligible to have all 12 credits of foundation series courses waived.

Foundations Series (12 credits):
Programming Fundamentals: GCIS 506 Object-Oriented Programming in Java and GCIS 507 Data Structures
Database Fundamentals: GCIS 508 Database Management Systems
Software Development: GCIS 580 Programming in Unix

Systems (3 credits): *One course:*
GCIS 514 – Requirements and Project Management

Data and Statistical Methods (9 credits): *Three courses:*
GCIS 516 – Data-Centric Concepts and Methods
GCIS 523 – Statistical Computing
GCIS 583 – Introduction to Cloud Architecture

Data Science (9 credits): *Minimally three of four courses:*
GCIS 655 – Data Mining (3 credits)
GCIS 656 – Text Mining (3 credits)
GCIS 657 – Big Data Analytics (3 credits) *or*
GCIS 658 – Data Analysis and Visualization (3 credits)

Elective (3 credits): *One of:*
Approved GCIS Electives. Electives may be any non-foundations series GCIS course approved by the faculty advisor. These choices may include non-GCIS graduate-level courses with approval of the department chair. Students who successfully complete the GCIS 799 course may waive one elective.

Professional Quality Module (3 credits): *One course:*
GCIS 605 – Scholarship Seminar

Research Project or Thesis: (3-6 credits): *One of:*
GCIS 698– Directed Research *or*
GCIS 698 and GCIS 699 – Directed Project/Research *or*
GCIS 799 – Thesis

COURSE OF STUDY FOR INFORMATION TECHNOLOGY (IT)

The MS-CIS with Information Technology Option is designed for students who wish to combine technical competence in information technology with knowledge of managerial and organizational issues. Students will have extensive skill and experience in the design and implementation of operational databases as well as the data warehousing, cloud computing technologies and related business intelligence technologies for managing the enterprise. They will be trained on the business intelligence techniques to discover knowledge from massive data sets along with the importance on data security. This option will prepare the student with the management and advanced technology skills needed to become a leader and decision-maker in the technology field. Career tracks include Database and Cloud Network Administrators and Designers, Data Security and Business Intelligence Analysts.

In addition to the overall program outcomes, at the conclusion of the program of study, the IT-option graduate will be able to:

IT-1. Understand database modeling, design and implementation
IT-2. Demonstrate knowledge of Cloud Computing Technologies
IT-3. Derive intelligence from large volumes of business data

CURRICULUM REQUIREMENTS

The Information Technology Option requires 30 credits beyond 12 credits of foundations courses. Nearly all graduates from four-year Information Systems, Computer Science, Software Engineering and related programs are eligible to have all 12 credits of foundation series courses waived.

Foundations Series (12 credits):
Programming Fundamentals: GCIS 506 Object-Oriented Programming in Java
Database Fundamentals: GCIS 508 Database Management Systems
Network Fundamentals: GCIS 581 Introduction to Networks
Software Development: GCIS 580 Programming in Unix

Systems (3 credits): *One course:*
GCIS 514 – Requirements and Project Management

Data and Statistical Methods (9 credits): *Three courses:*
GCIS 516 – Data-Centric Concepts and Methods
GCIS 523 – Statistical Computing
GCIS 583 – Introduction to Cloud Architecture

Information Technology (9 credits):
Minimally three of four courses:
GCIS 665 – NoSQL and RESTFul API (3 Credits) OR
GCIS 666 – Cybersecurity (3 Credits)
GCIS 667 – Cloud Networks (3 Credits)
GCIS 668 – Business Intelligence (3 credits)

Elective (3 credits): *One of:*
Approved GCIS Electives. Electives may be any non-foundations series GCIS course approved by the faculty advisor. These choices may include non-GCIS graduate-level courses with the approval of the department chair. Students who successfully complete the GCIS 799 course may waive one elective.

Professional Quality Module (3 credits): *One course:*
GCIS 605 – Scholarship Seminar

Research Project or Thesis: *(3-6 credits): One of:*
GCIS 698 – Directed Research *or*
GCIS 698 and GCIS 699 – Directed Research *or*
GCIS 799 Thesis

COURSE OF STUDY FOR SOFTWARE ENGINEERING (SE)

The Software Engineering (SE) option focuses on mobile computing and interactive software development. Software testing and quality assurance methods are weaved throughout the curriculum. Students develop interactive apps for iOS (iPad, iPhone) and Android.

In addition to the overall program outcomes, at the conclusion of the program of study, the SE-option graduate will be able to:

SE-1. Develop and deploy goal-oriented, high-quality interactive software systems
SE-2. Identify and apply effective engineering development techniques

CURRICULUM REQUIREMENTS

The Software Engineering option requires 30 credits beyond 12 credits of foundations courses. Nearly all graduates from four-year Information Systems, Computer Science, Software Engineering and related programs are eligible to have all 12 credits of foundation series courses waived.

Foundations Series (12 credits):
Programming Fundamentals: GCIS 506 Object-Oriented Programming in Java
Data Structures: GCIS 507 Data Structures
Database Fundamentals: GCIS 508 Database Management Systems
Software Design and Development: GCIS 510 Software Engineering

Systems and Project Management (3 credits): *One course:*
GCIS 514 Requirements and Project Management

Data-Centric Design and Development (3 credits): *One course:*
GCIS 516 Data-Centric Concepts and Methods

Mobile Programming (3 credits): *One of:*
GCIS 521 Advanced Programming: iOS *or*
GCIS 522 Advanced Programming: Java for Mobile

Software Design and Development (9 credits): *Three courses:*
GCIS 533 Software Patterns and Architecture
GCIS 634 Software Maintenance and Deployment
GCIS 639 Interactive Software Development

Elective (6 credits): *Two of:*
Approved GCIS Electives. Electives may be any non-foundations series GCIS course approved by the faculty advisor. These choices may include non-GCIS graduate-level courses with approval of the department chair. Students who successfully complete the GCIS 799 course may waive one elective.

Professional Quality Module *(3 credits):*
GCIS 605 Scholarship Seminar

Research Project or Thesis: *(3-6 credits): One of:*
GCIS 698 Directed Research or
GCIS 698 and GCIS 699 Directed Research or
GCIS 799 Thesis

PROFESSIONAL TRACK

Gannon partners with local industry in Erie, providing a two-year work-study program. The objective of the professional track is to present an academic program combined with application training on actual industrial problems to give students a targeted education, complemented by hands-on, real-world development exposure. Students are selected for the track based on academic background, leadership skills, and communication skills. The student is assigned a Gannon professor as a mentor while working at the industrial site. The mentor advises the student about academic work and guides the student on industrial projects. The projects are carefully chosen to reinforce classroom work and to develop the students into outstanding professionals. In addition to the mentorship in technical areas, the professor also mentors the student in leadership skills, work and personal ethics, and communication skills needed in the industrial workplace. The track requires students to work on projects half-time during the school year and full-time during the summer. Students receive full tuition and a yearly stipend for their work. Students need to apply and be accepted separately for the program. The number of students in the track is dependent on availability of industrial sponsorship.

CO-OP TRACK

The objective of the co-op track is to present an academic program combined with application training on actual industrial problems in computing and systems environments. The track is designed to give students a targeted education on real-world problems. Students may join the program after completing sufficient coursework to be successful in an industrial environment and receiving approved industrial sponsorship. International students participating in a co-op are required to contact the Office of Global Support and Student Engagement to apply for Curricular Practical Training before engaging in any co-op activity. Students accepted to the co-op track are assigned a Gannon professor as a mentor. During each semester in which they are enrolled in the co-op track, students must be enrolled in GENG 700, GENG 701, *or* GENG 702. Students are expected to begin participation in the co-op as soon as they are accepted to the program.

Students must complete 30 credits of graduate coursework beyond their foundations-series coursework in addition to their Graduate Professional Experience courses. Students must maintain a cumulative grade point average of at least 3.0 for the duration of their master's degree program and fulfill all other requirements for their degree. Applications to the Co-Op Track should include an acceptance letter and the work proposed must meet both GU and DHS criteria.

FIVE-YEAR ACCELERATED B.S./ M.S. PROGRAMS

Three undergraduate degrees programs (IS, CS, and SE) provide significant background for the MS-CIS degree program. There are three sets of pathways to the different MS-CIS options: IS to MS-CIS, CS to MS-CIS and SE to MS-CIS. These programs may be completed in five years of full-time study. Students apply in their Sophomore or Junior Year. Students are required to maintain a 3.00 GPA in their undergraduate courses. When accepted, students will rearrange their graduation plan accordingly. Six credits of identified UG work can be counted toward the MS-CIS degree; other MS-Equivalent courses can be counted for placement, but not credit toward MS-CIS degree requirements. Appropriate MS work can be counted as technical electives for those programs that require such.

DEPARTMENT POLICIES

Incomplete Grades in CIS

Incomplete ("I") grades for a course within the CIS Department require students to follow extra procedures in order for the "I" grade to be appropriately handled.

- Students must obtain confirmation from the course instructor to be assigned the "I" grade.
- The course instructor and student complete and sign an *"Incomplete Grades"* form before issuing the "I" grade. The form identifies required deliverables, expected delivery dates, and consequences for not following through on the work.

- The course instructor and student complete and sign a *"Behavioral Contract"*. The contract stipulates other activities and arrangements expected of the student in order to earn a grade in the course.
- The course instructor submits both forms to the department and to Graduate Records.
- If the "I" grade is assigned for either GCIS 698 Directed Research, GCIS 699 Directed Research, or GCIS 799 Thesis, then the student is also required to register for GCIS 697 (1 cr.) Directed Project in the semester when the incomplete work is being done. Registering for GCIS 697 Directed Project is to occur regardless of the other courses registered in the semester.

Research and Thesis Projects
All qualifying research and/or thesis projects must be successfully proposed to the department faculty and have a review committee assigned prior to course registration. Standards for project scope and proposal methods are managed by the department chair. Externally-sponsored projects are encouraged, but not required. All projects must have a CIS Faculty member in charge of the work, with a supporting committee of two department faculty and optionally one external committee member. The committee is assigned by the chair prior to registration. The committee is responsible for:

- Supporting the student in completing their work
- Approving changes to the defined work scope,
- Judging the quality of the project work through the written and oral presentations of the work.
- Grading of these courses is by the committee as a whole.

Students are responsible to identify the project, stakeholders and/or topics, and complete the project on their own. Students are encouraged to identify, and start work on their projects, especially requirements and exploratory research prior to proposing their projects. Students should register for their project or thesis credits in the semester that they expect to complete the project, not necessarily in the semester they start the project. Please see the chair with questions.

C-Grade Policy
Gannon graduate students are required to earn a grade point average (GPA) of 3.0 or better in order to successfully complete the graduate program. CIS graduate students are expected to maintain a semester GPA of 3.0 or better. Because of CIS scheduling patterns, the necessity of retaking a course to improve one's GPA may cause the duration of one's graduate studies to extend one year or more.

COURSE DESCRIPTIONS

FOUNDATIONS SERIES
Foundations-series courses may not serve as elective courses to satisfy MS graduation requirements.

GCIS 506 Object-Oriented Programming in Java
3 credits, Spring
Prerequisite: Satisfactory completion of undergraduate programming course
The course covers the application of object-oriented programming to software development which includes the general topics of encapsulation, inheritance, and polymorphism. Topics also include GUI objects, event-driven programming, and exception handling. Basic object-oriented design principles using UML diagrams are introduced to facilitate large scale software development.

GCIS 507 Data Structures
3 credits, Fall
Prerequisite: GCIS 506
An in-depth programming-based study of data structures and of algorithms for their manipulation. Arrays, tables, stacks, queues, trees, linked lists, sorting, searching and hashing are topics considered.

GCIS 508 Database Management Systems
3 credits, Spring
A skills-building course in the fundamentals of database design, creation, and operations. Course topics include the ability to create a project-based database and its associated queries.

GCIS 509 Systems Analysis and Design
3 credits, Fall
Prerequisite: GCIS 506
An introduction to the role and responsibilities of a systems analyst. Students examine systems by analysis, modeling, and design at the enterprise, process, logical, data, and technology levels. Optionally included topics are feasibility analysis, technology evaluation, project management, object-oriented analysis.

GCIS 510 Software Engineering
3 credits, Spring
Prerequisite: GCIS 506
An advanced treatment of methods for producing a software design, and the testing of that design and ensuing code. Focus is on object-oriented analysis and design methods, black-box (functional) testing techniques. Includes treatment of the developing Unified Modeling Language (UML) techniques and its application to software development.

GCIS 580 Programming in UNIX
3 credits, Fall
Prerequisite: GCIS 506 or equivalent
Students are introduced to the UNIX system, shell programming and program development in the UNIX environment. Basic commands

and utilities provided through standard UNIX or UNIX-dialect shell are covered. The UNIX command language interpreter and the ability to write routines within its structure are addressed. Course includes configuration and use of software tools for development of higher-order language compilation as well as the use of configuration management tools.

GCIS 581 Introduction to Networks
3 credits, Fall
Prerequisite: None
This course is designed to introduce the student to the fundamentals of network technology. The student will learn how to identify the different types of networks and to implement and support the major networking components including the server, operating system, and clients. Different types of media used in network communications will be explained. Students will learn how to use these media to connect clients to the network. Networking standards, protocols, and access methods will be introduced in order to create appropriate networks for a given environment.

500 SERIES
GCIS 514 Requirements and Project Management
3 credits, Fall and Spring
Prerequisite: GCIS 509 or GCIS 510
The course focuses on the requirements engineering and project management process, and how these two practices are intertwined. Requirements engineering includes the study of tools, methods and description techniques applicable from initial requirements elicitation through to requirements validation. Along with the requirements engineering focus, the project management skills for managing software systems and projects are addressed. The course includes specific techniques for the analysis, modeling, validation, and management of requirements for engineering and a general introduction to the PMBOK terminology. Ethical practice of software engineering and information system development is addressed.

GCIS 515 Software Testing and Quality Assurance
3 credits, Fall
Prerequisite: GCIS 510 and (GCIS 506 or GCIS 521 or GCIS 522)
The course is concerned with understanding the role of quality assurance in the software development cycle and applying these techniques to software products. Course topics include test design methods, test planning, automated test support, quality measurement and quality tracking techniques.

GCIS 516 Data-Centric Concepts and Methods
3 credits, Fall and Spring
Prerequisite: GCIS 508
The course introduces the concepts and approaches necessary for data-centric design and development of high-quality software and systems. Incorporated in the course is an introduction to the systematic methodologies and tools required for the development and use of vital data connections.

GCIS 521 Advanced Programming: iOS
3 credits, Fall
Prerequisite: GCIS 506 and GCIS 510
The course treats the development of Objective-C programming language for application development, including an overview of the language and libraries, object-oriented development, source-code control and an introduction to testing. Project work will include the application of design patterns, user-interfaces, multi-threading, database connectivity and other relevant materials. The course includes introductory material in mobile design, and a variety of building blocks utilizing libraries and modes available to the mobile app developer in the iOS domain.

GCIS 522 Advanced Programming: Java for Mobile
3 credits, Spring
Prerequisite: GCIS 506 and GCIS 510
The course treats the development of the Java programming language for application development, including an overview of the language and libraries, object-oriented development, source-code control and an introduction to testing. Project work will include the application of design patterns, user-interfaces, multi-threading, database connectivity and other relevant materials. The course includes introductory material in mobile design, and a variety of building blocks utilizing libraries and modes available to the mobile app developer in the Java domain.

GCIS 523 Statistical Computing
3 credits, Fall and Spring
Prerequisite: None
The advancement of statistical methodology is now inextricably linked to the use of computers. The translation of a statistical problem into its computational analog (or analogs) is a skill that must be learned by actively solving relevant problems. This course focuses on training students to solve statistical problems using programming languages. The course includes specific computational methods for the analysis, modeling, validation, and interpretation of various statistical problems derived from biology and business. It includes a special emphasis on statistical analysis, experiments design and the related computational solutions/packages.

GCIS 531 Distributed Programming
3 credits, Spring
Prerequisite: GCIS 506 or equivalent
An introduction to the fundamental techniques and tools used to develop programs that rely on inter-process communication. Topics include TCP/IP, client-server paradigm, daemon programs, client socket calls, server socket calls, concurrent vs. iterative servers, connectionless and connection-oriented server paradigms.

GCIS 533 Software Patterns and Architecture
3 credits, Spring
Prerequisite: (GCIS 506 or GCIS 521 or GCIS 522) and GCIS 507 and (GCIS 509 or GCIS 510)
This course is concerned with the issues, techniques, strategies, representations and patterns used to design and implement a software

component or a large-scale system. Using the Unified Modeling Language (UML), it focuses on defining architectures that conform to requirements, achieve quality goals and work within constraints including resource, performance, reliability and security. The course includes project work that emphasizes the selection and appropriate use of architectural specification.

GCIS 546 Managing Information Organizations
3 credits, Fall
Prerequisite: GCIS 509 or GCIS 510
Introduces theories and techniques of information science and management to information enterprises, concentrating on how the structure and dynamics of the environment influences the behavior of the enterprise. Aspects of organizational structure, knowledge management, decision making, planning, control, political processes, leadership, communication, and human resources are examined in light of the theories.

GCIS 555 Dynamic Web Development
3 credits, Fall
Prerequisite: GCIS 506 and GCIS 508
The course is concerned with the development of database systems and their application in multi-tiered systems. The student develops desktop and web-based database applications. Typical coverage includes event-driven programming.

GCIS 583 Introduction to Cloud Architecture
3 credits, Fall and Spring
Prerequisites: GCIS 580 and 581
This course focuses on the configuration of networks for internet services, and how to deploy and maintain internet servers on multiple platforms. The course includes extensive laboratory work to support the installation and configuration of hardware and software to support networking, servers, and security for internet services, particularly on Windows and UNIX platforms. This course also includes discussion of the ramifications of internet service technologies. Finally, building of Network Balanced and High Availability Clusters that are the building blocks of forming a Cloud will be highlight of this course.

GCIS 590-595 Special Topics in CIS
1-3 credits
Prerequisite: Specific prerequisites are topic-related
The course offers presentation of topics that are emerging as the field of computer and information science changes. The objectives and content reflect the interests of the faculty and the students relative to the topic.

600 SERIES
GCIS 605 Scholarship Seminar
3 credits, Fall and Spring
Prerequisite: Completion of all foundation courses and 12 credits of post-foundation graduate work
Co-requisite: GCIS 514
The course emphasizes the skills necessary to perform effectively and professionally, and includes writing, listening, and presentation skills. The course focuses on posing a research question, gathering appropriate source materials, analyzing the current status of related materials, planning a valid study, defining project goals, selecting appropriate research and/or development methods and assessment techniques and formulating an effective project proposal. Review of professional and research ethics is included.

GCIS 634 Software Maintenance and Deployment
3 credits, Fall
Prerequisite: GCIS 521 or GCIS 522
The course introduces the concepts and approaches necessary for the maintenance and refactoring of software projects, particularly in a rigorous life-cycle process. The course focuses on materials related to software maintenance, process, metrics and quality related to the development and improvement of high-quality software and systems. The course includes significant project work where students apply a rigorous process to the refactoring of a software product to improve its features and quality.

GCIS 639 Interactive Software Development
3 credits, Fall
Prerequisite or co-requisite: GCIS 521 or GCIS 522
This course deals with developing interactive computer-based systems that allow users to complete meaningful tasks. This includes both the process and tools for exploring users' needs, analyzing tasks and information flow, as well as identifying, defining and assessing usability factors through usability testing. Interface specification and iterative interface design and prototyping is addressed.

GCIS 644 Knowledge-Based Systems
3 credits
Prerequisites: GCIS 516 and GCIS 523
An introduction to advanced information systems combining a database management system, a model-based management system, and a dialog management system. Emphasis is placed on decision support system requirements analysis and specification, the use of alternative analytical methods, iterative design approaches for realization of analytical systems, and developing appropriate integrated information systems architecture. Multidimensional databases and data warehousing initiatives are presented as other forms of knowledge-based systems.

GCIS 646 Architecting Enterprise Information Systems
3 credits
Prerequisites: GCIS 509 and GCIS 514
Integrating analytical systems into the information system architecture in organizations requires an understanding of the infrastructure, the processes, and the governance of the enterprise. Through a real-world analysis and design project, students examine, document, and recommend the role of information systems for producing cohesive business processes and functional applications to meet business need. Current and emerging issues of creating, coordinating, and managing the key activities by the organization

to build cohesive and strategically responsive information systems are addressed.

GCIS 655 Data Mining Concepts and Techniques
3 credits
Prerequisites: All foundation courses; GCIS 507 and GCIS 516 and GCIS 523
The course introduces the multidisciplinary field of data mining, and the importance of data quality and cleaning. Included are the essential data mining and knowledge representation techniques used to extract intelligence from large data sets in order to discover patterns or within them. Techniques include advanced frequent pattern mining techniques, classification, and clustering methods. Students demonstrate their understanding of intelligent systems technologies in one or more applications.

GCIS 656 Text Mining
3 credits
Prerequisites: All foundation courses; GCIS 507 and GCIS 516 and GCIS 523
This course covers foundations of text mining and text analysis, acquiring data, the logic of text mining, and techniques for web-scrapping and web-crawling. It includes text mining fundamentals such as lexical resources, basic text processing and supervised learning. Included are text analysis methods from the humanities and social sciences such as analyzing narratives, themes, metaphors as well as text mining methods from computer science such as text classification, opinion mining, and information extraction.

GCIS 657 Big Data Analytics
3 credits
Prerequisites: All foundation courses; GCIS 507 and GCIS 516 and GCIS 523 and GCIS 583
The course introduces the fundamental concepts of Big Data management and analytics, challenges and applications. It includes MapReduce methodology for exploiting parallelism in clouds (racks of interconnected processors) to compute very large amounts of data. Algorithms for streaming data, web search, on-line advertising and recommender systems are also discussed.

GCIS 658 Data Analysis and Visualization
3 credits
Prerequisites: All foundation courses; GCIS 507 and GCIS 516 and GCIS 523
The course contains three parts. The first part of course explores scripting for the data science pipeline. Students learn to acquire, access, and transform different forms of data, including structured, semi-structured and unstructured data. The second part of course explores complicated statistical models, focusing on regression models. The third part of the course focuses on data visualization, layered grammar of graphics, perception of discrete and continuous variables, introduction to Mondran, mosaic pots, parallel coordinate plots, introduction to ggobi, linked pots, brushing, dynamic graphics, model visualization, clustering and classification.

GCIS 665 NoSQL and The RESTful API
3 credits
Prerequisites: All foundation courses; GCIS 506 and GCIS 516 and GCIS 583
The student will learn to set up a RESTful API using the Express Server to create endpoints needed to add, update, and delete data from a cloud (e.g. MongoDB) database. The course will cover middleware, testing in Node.js, application organization, data modeling, querying data with Mongoose, using Web Token Authentication (e.g. JSON), securing routes, and deployment.

GCIS 666 Cybersecurity: Ethical Hacking
3 credits
Prerequisites: All foundation courses; GCIS 516 and GCIS 523
The course develops the structured knowledge base needed to discover vulnerabilities and recommend solutions for tightening network security and protecting data from potential attackers. Students focus on using penetration-testing tools and techniques to protect computer networks. This course provides students basic knowledge and skills in the fundamental theories and practices of Cyber Security. In addition, this course will provide a basic introduction to of all aspects of cyber-security including procedures, communications security, network security, defender website, legal issues, and technical issues. Also, it will support some technical approaches using in ethical hacking.

GCIS 667 Cloud Networks
3 credits, Spring
Prerequisites: All foundation courses; GCIS 516 and GCIS 523 and GCIS 583
This course builds from clustered servers to running different services and applications on a private cloud. The course includes extensive laboratory work to support the installation and configuration of a private cloud system. It provides a hands-on comprehensive study of cloud concepts and capabilities across the various cloud service models including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), and Business Process as a Service (BPaaS).

GCIS 668 Business Intelligence
3 credits, Spring
Prerequisites: All foundation courses; GCIS 516 and GCIS 523 and GCIS 583
Advances in computing technologies have greatly enhanced our ability to collect and store large amounts of data, i.e. big data. Yet, corporations today are said to be data rich but knowledge poor. This course will introduce state-of-the-art Business Intelligence and Analytics techniques to discover knowledge from massive data sets using a hands-on approach. Students will have a chance to apply such techniques on real-world data sets in various domains, including finance, healthcare, commerce and sports in order to produce actionable intelligence for enhanced managerial decision making.

GCIS 690-695 Special Topics in CIS
3 credits
Prerequisite: Specific prerequisites are topic-related
The course offers presentation of topics that are emerging as the field of computer and information science changes. The objectives and content reflect the interests of the faculty and the students relative to the topic.

GCIS 697 Directed Project
1 credit

GCIS 698 Directed Research
3 credits
Prerequisite: GCIS 605
The course tracks the completion of an independent/team project. Passing a final oral examination covering the student's project area and related subject areas and documenting the research project are part of its requirements for satisfactorily completing the course. The content of the independent/team project can be either an in-depth scholarship culminating in a publishable-quality manuscript (hereafter referred to as a 'research project') or the study and development of a prototype-level application culminating in a publishable-quality technical report (hereafter referred to as a 'technical project').
The project content represents a researched and creative expression of the student's advanced capability as a result of the graduate program. The directed research project must be proposed and approved prior to the commencement of the independent project work.

GCIS 699 Directed Research
3 credits
Co-requisite: GCIS 698
The course complements GCIS 698 for larger research projects satisfying Plan B of the Project Requirement.

GCIS 799 Thesis
3-6 credits
Prerequisite: GCIS 605
The course tracks the completion of an independent research project and the final oral examination covering the student's project area and related subject areas. The content of the independent, in-depth scholarship culminates in a publishable-quality manuscript (here after referred to as a 'research project').

The thesis work represents a researched and creative expression of the student's advanced capability as a result of the graduate program. The thesis must be proposed and approved prior to the commencement of the independent project work. The credits may be taken as a six-credit block, or as two 3-credit blocks.

MSCIS-DATA SCIENCE CURRICULUM

FALL START
Semester 1
GCIS 516 Data-Centric Concepts and Methods
GCIS 523 Statistical Computing
GCIS 583 Introduction to Cloud Architecture

Semester 2
GCIS 514 Requirements and Project Management
GCIS 657 Big Data Analytics
GCIS 658 Data Analysis and Visualization

Semester 3
GCIS 605 Scholarship Seminar
GCIS 655 Data Mining or
GCIS 656 Text Mining
GCIS xxx Elective
(Project Proposal)

Semester 4
GCIS 698– Directed Research

SPRING START
Semester 1
GCIS 516 Data-Centric Concepts and Methods
GCIS 523 Statistical Computing
GCIS 583 Introduction to Cloud Architecture

Semester 2
GCIS 514 Requirements and Project Management
GCIS 655 Data Mining
GCIS 656 Text Mining

Semester 3
GCIS 605 Scholarship Seminar
GCIS 657 Big Data Analytics or
GCIS 658 Data Analysis and Visualization
GCIS xxx Elective
(Project Proposal)

Semester 4
GCIS 698 Directed Research

MSCIS-INFORMATION TECHNOLOGY CURRICULUM

FALL START
Semester 1
GCIS 516 Data-Centric Concepts and Methods
GCIS 523 Statistical Computing
GCIS 583 Introduction to Cloud Architecture

Semester 2
GCIS 514 Requirements and Project Mgmt
GCIS 665 NoSQL and RESTFul API
GCIS 668 Business Intelligence

Semester 3
GCIS 605 Scholarship Seminar
GCIS 666 Cybersecurity or
GCIS 667 Cloud Networks
GCIS xxx Elective
(Project Proposal)

Semester 4
GCIS 698– Directed Research

SPRING START
Semester 1
GCIS 516 Data-Centric Concepts and Methods
GCIS 523 Statistical Computing
GCIS 583 Introduction to Cloud Architecture

Semester 2
GCIS 514 Requirements and Project Mgmt
GCIS 666 Cybersecurity
GCIS 667 Cloud Networks

Semester 3
GCIS 605 Scholarship Seminar
GCIS 665 NoSQL and RESTFul API or
GCIS 668 Business Intelligence
GCIS xxx Elective
(Project Proposal)

Semester 4
GCIS 698– Directed Research

MSCIS-SOFTWARE ENGINEERING CURRICULUM

FALL START
Semester 1
GCIS 516 Data-Centric Concepts and Methods
GCIS 521/2 Advanced Programming
GCIS xxx Elective

Semester 2
GCIS 533 Software Patterns and Architecture
GCIS 514 Requirements and Project Mgmt
GCIS xxx Elective

Semester 3
GCIS 605 Scholarship Seminar
GCIS 634 SW Maintenance and Deployment
GCIS 639 Interactive Software Development
(Project Proposal)

Semester 4
GCIS 698– Directed Research

SPRING START
Semester 1
GCIS 516 Data-Centric Concepts and Methods
GCIS 521/2 Advanced Programming
GCIS 514 Requirements and Project Mgmt

Semester 2
GCIS xxx Elective
GCIS 634 SW Maintenance and Deployment
GCIS 639 Interactive Software Development

Semester 3
GCIS 605 Scholarship Seminar
GCIS 533 Software Patterns and Architecture
GCIS xxx Elective
(Project Proposal)

Semester 4
GCIS 698 Directed Research

Criminalistics

Program Director: Ted Yeshion, Ph.D.

INTRODUCTION

The primary goal of the Master of Science in Criminalistics is to provide students with a theoretical foundation, while focusing on criminal investigative techniques and practical application. With hands-on experience, students will be able to apply terms, skills and techniques utilized in the field of Criminal Justice. There are currently 1.5 million full-time law enforcement officers in the United States. With the increased professionalization of the Criminal Justice field, many state and local police departments are beginning to require bachelor degrees, with graduate degrees being crucial to promotion. Furthermore, to be competitive, federal agents are increasingly in need of a graduate degree. Popular career paths include local and state police departments in addition to federal agencies such as FBI, DEA, and ATF.

STUDENT LEARNING OUTCOMES

At the completion of this 36-credit program students will be able to:

1. Demonstrate an understanding of the scientific principles of crime scene investigation and reconstruction, including evidence collection and preservation.
2. Demonstrate the capabilities, use, potential and limitations of forensic laboratory theory and techniques with respect to the analysis of evidence.
3. Utilize ethical principles and an understanding of legal precedents to make decisions related to investigative techniques, analysis of evidence, and courtroom testimony.
4. Demonstrate problem-solving skills and synthesize forensic, evidential, and investigatory information from multiple sources to generate theories about crime.
5. Conduct interviews and interrogations, develop and execute investigative plans, follow up investigative leads, document their findings, and testify to the interpretation of evidentiary findings in a courtroom setting.
6. Integrate knowledge and skills through an applied capstone experience.

ADMISSION REQUIREMENTS

Applicants interested in the Master of Science in Criminalistics must hold a bachelor's degree from an accredited college or university. The undergraduate degree does not have to be in criminal justice, but applicants are required to demonstrate a basic understanding and awareness of the criminal justice system.

- Submit graduate application
- Submit final, official, transcripts from all colleges/universities attended
- Submit three letters of recommendation
- Submit an updated resume
- Undergraduate degree (or expected completion of the undergraduate degree prior to enrollment) preferably in criminal justice, natural science, computer science or related field.
- Successful completion of undergraduate-level coursework in the following courses, achieving a minimum grade of "C" in each: Introduction to Criminal Justice, Investigative Concepts, Natural Science course
- Minimum 2.75 overall GPA, 3.00 in prerequisite courses
- Act 33/34 and FBI background check clearance is needed for full acceptance
- A personal interview may be required. The student will be contacted to schedule an interview.
- All application materials must be submitted to the Graduate Admissions Office no later than August 1 (for Fall admission), November 1 (for Spring admission), or May 1 (for Summer Admission).
- The graduate assistantship deadline is March 15.

CURRICULUM

Students can begin the program in the Fall, Spring, or Summer semesters. Flexible scheduling options are available.

Fall Course Offerings
GCRIM 501: Crime Scene Techniques
GCRIM 601: Criminalistics
GCRIM 509: Crime Mapping and Analysis
GCRIM 507: Criminal Law of Evidence

Spring Course Offerings
GCRIM 621: Physical and Pattern Evidence
GCRIM 508: Courtroom Procedures
GCRIM 611: Digital Evidence
GCRIM 631: Applied Criminalistics

Summer Course Offerings
GCRIM 622: Medicolegal Investigation
GCRIM 612: Interviewing and Dispute Resolution
GCRIM 602: Psychology and the Law
GCRIM 641: Forensic Investigation Practicum

ASSISTANTSHIPS

Graduate Assistantships are available for full-time and part-time students. Potential responsibilities of Graduate Assistants include:

- Assisting experienced faculty members with research
- Assisting faculty members with teaching responsibilities
- Helping to manage the Forensic Investigation Center
- Assisting with various programmatic duties

4+1 MS CRIMINALISTICS DEGREE PROGRAM

The 4+1 MS degree program is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate degree in various disciplines and a Master's Degree in Criminalistics within a five year period. Students from any major may apply and should do so in their junior year. Working with both the undergraduate advisor and Criminalistics Program Director, the student will customize a schedule in which they will take graduate courses during their senior year. Students are able to complete up to 12 credits of graduate coursework as an undergraduate student. Students who successfully complete these courses may apply to continue into the MS in Criminalistics to complete the remaining credits. Applicants to the program must have a 3.0 undergraduate GPA. Retention in the program requires that the student maintain a minimum of a 3.0 GPA for their undergraduate studies.

COURSE DESCRIPTIONS

GCRIM 501 Crime Scene Techniques
3 credits
This is a course in the study of crime scene investigation. This course offers a comprehensive and engaging examination of criminal investigation and the vital role that criminal evidence plays in the process. This course focuses on the five critical areas essential to understanding criminal investigations: background and contextual issues, criminal evidence, legal procedures, evidence collection procedures, and forensic science. This course includes a multitude of case examples to illustrate key points and as a basis for discussion about the proper conduct of criminal investigations and goes beyond a simple how-to in investigative procedures, drawing from fascinating modern research and its importance in the real world of criminal justice.

GCRIM 507 Criminal Law of Evidence
3 credits
Criminal Law provides students with an integrated framework for understanding the U.S. criminal justice system with a diverse and inclusive interdisciplinary approach and thematic focus. This course looks at the law and decisions in court cases and considers and integrates issues of race, gender, and socio-economic status with their discussion of criminal law. Material from the social sciences is incorporated to highlight the intersection between criminal law and key social issues. Case excerpts and detailed case summaries used to highlight important principles of criminal law are featured throughout the course. The coverage is conceptual and practical, showing students how the criminal law applies in a "real world" environment.

GCRIM 508 Courtroom Procedures
3 credits
In this course, you will review ways in which the law, particularly the law of evidence, affects the work of law enforcement professionals. This course outlines the various roles of courtroom participants, paying particular attention to preparing individuals to become expert witnesses in the courtroom. This course works through the legal process up through trial, including appeals and motions for a new trial. Important legal doctrines such as chain of custody, work product privileges, laying the proper foundation, exhibits, and the standards necessary to obtain a new trial are also studied. This course will cover the various roles in the courtroom, trial preparation, preparing witnesses, and pointing out the differences between grand juries and trials.

GCRIM 509 Crime Mapping and Analysis
3 credits
This course will provide students with the knowledge and use of GIS (Geographic Information System) in crime prevention and crime analysis. Students will learn through crime mapping exercises the various uses of GIS in a criminal investigation, prosecution, and correctional management. Students will develop crime-mapping projects using online data and will learn skills to make and analyze maps.

GCRIM 601 Criminalistics
3 credits
In this course, you will learn many of the cardinal theories and techniques of forensic science, criminalistics and laboratory analysis. The necessity of a rigorous scientific approach will be stressed. The course is designed to acquaint the student with a comprehensive understanding of today's crime laboratories and investigative techniques involving the proper collection, preservation, and analysis of evidence. The student will be introduced to scientific, technological, and experientially-based procedures as they are applied in the criminal justice system.

GCRIM 602 Psychology and Law
3 credits
This course offers a definitive perspective on the practical application of psychological research to the law. Insight is offered into the application of psychology in criminal and non-criminal matters. Topics such as family law, insanity, police interrogation, jury selection and decision making, involuntary civil commitment, and various civil capacities are included. The course emphasizes the major contributions psychological research has made to the law and encourages critical analysis through examples of court cases, high-profile current events, and research leadership and the organizational improvement process.

GCRIM 611 Digital Evidence
3 credits
Computer and communication technologies have become key components to support critical infrastructure services in various sectors of our society. In an effort to share information and streamline operations, organizations are creating complex network systems and opening their networks to customers, suppliers, and other business partners. Increasing network complexity, greater access, and a growing emphasis on the Internet have made information and network security a major concern for organizations. This course focuses on computer and cyber forensics. Students will learn different aspects of computer and cybercrime and ways in which to uncover, protect, exploit, and document digital evidence. Students will be exposed to different types of tools (both software and hardware), techniques and procedure, and will be able to use them to perform rudimentary forensic investigations.

GCRIM 612 Interviewing and Dispute Resolution
3 credits
This course is working through the legal and practical aspects of interviewing and interrogation. The course offers perspectives from hands-on to legal considerations as well as ethics. Interrogation and interviewing are the cornerstones of any investigation and can make or break a case in court. It is imperative that one recognizes the legalities involved in the ethics of appropriate conduct and the proven methods and procedures for successful interviewing and interrogation. This course will utilize technologies such as Skype and Adobe Connect to allow students to practice interviewing techniques.

GCRIM 621 Physical and Pattern Evidence: Investigative Methods
3 credits
In this course, you will learn various techniques utilized in data collection, information assessment, theory development, and evidence application as it relates to criminal investigations. The types of data associated with the three primary crime motivations will be studied with student recognition of data and the appropriate application of the information properly placed in relation to the identified motive. The course is designed to acquaint the student with a process involving investigative methodology and a comprehensive understanding of the most utilized investigative techniques in pursuit of the necessary evidence to successfully investigate and perfect today's most serious crimes. The student will be introduced to scientific, technological, and experientially-based procedures as they are applied in the criminal justice system.

GCRIM 622 Medicolegal Investigation
3 credits
This course provides an intensive look at medical and legal investigations. Topics include the difference between the medical (pathological) and legal (criminal) components of investigations into the manners and causes of death, medical and investigative terminology, the differences between a coroner and a medical examiner, and the impact of ethics on prosecutions and convictions. Case studies illustrate practical applications of various forms of forensic styles and parameters.

GCRIM 631 Applied Criminalistics
3 credits
This course complements prior courses by giving the student opportunities to investigate concepts and techniques learned during lectures previous instruction. The course focuses on the theories and practical applications regarding the identification and individualization of biological and physical evidence and uses a kit of multiple forensic experiments that students will do at home as part of their assessments.

GCRIM 641 Forensic Investigation Practicum
3 credits
This course examines the various forensic investigatory topics treated during the Criminalistics program, together with the expansion of a few topics not examined in detail during the program. The use of scientific methodology and ethical practices form the framework for intellectually examining the totality of a crime scene investigation. During the residency, mock crime scenes will be conducted to assess the knowledge, skills and abilities of students. Scenes may be indoor and/or outdoor. In addition, the forensic lab will be utilized to practice forensic techniques such as fingerprinting, blood detection, blood spatter, and casting impressions with dental stone.

Cybersecurity Essentials Certificate – Online

Program Director: Joshua C. Nwokeji, Ph.D.

INTRODUCTION

The Cybersecurity Essentials certificate provides the foundation for working professionals holding a nontechnical undergraduate or graduate degree and looking to improve their knowledge in cybersecurity, increase their job prospects, or take the first step towards a graduate degree in the cybersecurity field. Individuals in the cyber field need to be equipped with cybersecurity concepts and knowledge to protect and defend apps, data, networks, devices, critical systems, infrastructure, and people. The goal of the certificate is to build cyber competencies in the current workforce by providing the foundational knowledge needed to obtain industry professional certification such as CompTIA Networking +, CompTIA Security+, Global Information Assurance Certification (GIAC).

The curriculum is based on the Center of Academic Excellence in Cyber Defense Education (CAE-CDE) Designation Requirements. The Cybersecurity Essentials is a 12-credit certificate program that can be completed in one year. Courses will be offered in a 7-week format. The certificate is delivered online. The length of the program will be two semesters by taking two courses per semester.

CERTIFICATE OUTCOMES

After the certificate, the participants will be able to:

1. Apply cybersecurity principles and practices to maintain operations in the presence of risks and threats and communicate effectively in a variety of cybersecurity professional contexts.
2. Demonstrate appropriate skills in operating and managing networks, using appropriate cybersecurity analysis tools to identify network vulnerabilities.
3. Display competence in the common standards related to information assurance to recognize professional responsibilities and make informed decisions in cybersecurity practice.

ADMISSION REQUIREMENTS

1. Completion of an undergraduate degree with a 2.5 QGPA or better
2. Completed application
3. Transcripts for college course work
4. TOEFL/other scores if English is not the first language

COURSE DESCRIPTIONS

GCYSEC 501 Networking Fundamental
3 credits, FA-1
Prerequisite: None
Topics include networking models and media, architectures, topologies, devices, protocols, use of tools, processes, threads, memory, file systems, virtualization, access control, domain separation, process isolation, resource encapsulation, and least privilege.

GCYSEC 502 Cybersecurity Foundations
3 credits, FA-2
Prerequisite: GCYSEC 501or equivalent
Topics include Malware, vulnerability scanning, and penetration testing; Network components, frameworks, and secure network architectures; Identity and access management control; Policies, plans, and procedures; and cryptographic concepts.

GCYSEC 503 Security Leadership
3 credits, SP-1
Prerequisite: GCYSEC 501or equivalent
Topics include cryptographic applications; incident response and business continuity; and managing security operations center, application security, negotiations and vendors, projects, and security architecture.

GCYSEC 504 Cybersecurity Management
3 credits, SP-2
Prerequisite: GCYSEC 501 equivalent
Topics include managing security awareness and policy, system security and program structure; network monitoring, security and privacy; network concepts; risk management and security frameworks; and vulnerability management.

See catalog descriptions in the *Information Assurance and Cybersecurity* (MS-IAC) program listing.

Education

MISSION OF THE GRADUATE SCHOOL OF EDUCATION

The mission of the Graduate Department in the School of Education at Gannon University is to provide professional educators a practitioner-oriented instructional program that is steeped in academic excellence, visionary leadership, ethical practices, and collegiality.

Master of Education: Curriculum and Instruction – ONLINE

MISSION OF THE GANNON MASTER OF EDUCATION IN CURRICULUM AND INSTRUCTION PROGRAM

The Mission of the Gannon Master of Curriculum and Instruction program is to provide candidates exceptional professional education through integration of theory and pedagogy to prepare them to be Agents of Change within the disciplines of curriculum, instruction, and assessment.

OVERVIEW

Gannon University offers the Master of Education in Curriculum and Instruction online. The Master's degree is a 30 credit, non-thesis program. Twenty-four credits are taken from the Gannon core and six credits are earned as electives.

The program is designed to be convenient and flexible for teachers. Graduate learners complete two Gannon core courses (6 credits) each semester for four semesters. Courses are offered online in 7-week sessions, and graduate learners may take more than one course at a time. Graduate learners complete the electives online whenever it is most convenient for them.

The Program Reflection is the capstone project in the M.Ed. in Curriculum and Instruction. After completing eight key assessments throughout the core courses, this final 4-6-page submission answers a series of targeted questions that require graduate learners to reflect upon their entire experience in the program.

TEACHERS AS AGENTS OF CHANGE – A RATIONALE

The Teacher as Agent of Change is the conceptual framework for the M.Ed. It is a unifying theme for all courses and is particularly applicable to the Program Reflection as well as the action research process and dispositions. Considerable dialogue has taken place in recent years about the need for positive change in American education. The Gannon Master of Education enables the graduate learner to seize the opportunity to engage in a professional process of renewal. Graduate learners are empowered to translate their knowledge and skills into applied action research in the classroom.

LEARNING OUTCOMES

Upon completion of the Master of Education: Curriculum and Instruction program, graduate learners are able to:

- Demonstrate advanced knowledge in the areas of curriculum, instruction, and assessment
- Engage in applied professional development and reflection
- Demonstrate the impact of change within a school environment

ADMISSIONS REQUIREMENTS

- A Bachelor's degree from a regionally accredited college or university and fulfillment of requirements for admission to the graduate program at Gannon University
- Final, official transcripts from all colleges attended with a minimum cumulative grade point average of a 3.0 on a 4.0 scale; provisional acceptance may be granted in some instances
- A completed application for admission including three letters of recommendation from persons qualified to judge the applicant's character and scholarly/professional abilities
- Evidence by previous academic record that the applicant has the general ability and preparation necessary to pursue graduate study successfully

CURRICULUM REQUIREMENTS

Transfer of credits:
Transferring credits to a program is done at the discretion of the program coordinator. Minimum requirements are that they are graduate courses from an approved institution which have a grade of "B" or better and are recorded on an official transcript, and which are no older than five years at the time of submission for consideration. No credits may be transferred in place of the core courses.

Core Courses and Portfolio (24 credits)

GEDU 505	Classroom Management (3 credits)
GEDU 601	Action Research (3 credits)
GEDU 602	Program Reflection (0 credits)
GEDU 604	Educational Tests and Measurements (3 credits)
GEDU 609	Inclusive Classroom Practices (3 credits)
GEDU 612	Leadership, Current Issues, and the Teacher as Agent of Change (3 credits)
GEDU 621	School Curriculum (3 credits)

GEDU 623	Technology Literacy and Integration (3 credits)
GEDU 637	Learning Theory (3 credits)
Electives	(6 credits)

Gannon University Elective Cohort
Gannon University Elective Cohort offers courses online that can fulfill the M.Ed. elective requirements. These courses are offered at a significantly reduced cost from the tuition for the core courses. These courses are based on the *teacher friendly* model for which Gannon University is known. The courses are taught utilizing the Gannon University practitioner model that emphasizes theory aligned with practical application. The courses stress the needs of Pennsylvania's educational community and are linked to school district initiatives. For further information go to www.gannon.edu/Act 48.

Advanced Certification Program Options:
Graduate learners can use the elective requirement to begin taking courses toward an advanced certification as a Reading Specialist (online courses plus practicums), ESL Program Specialist (online courses plus practicums), Principal Certification (online courses plus internships), or a District-Wide Supervisory Certificate (online courses plus internship). In addition, participants who wish to become secondary teachers in Biology, English, History/Social Studies, or Mathematics may use the elective requirement toward an initial certification.

Master of Education: Curriculum and Instruction – Secondary Teacher Certification

Program Coordinator: Janice M. Whiteman, M.Ed.
Phone: (814) 871-7497 • whiteman002@gannon.edu

MISSION OF THE GANNON SECONDARY TEACHING PROGRAM

The Secondary programs promote excellence in content knowledge, intellectual skills, and dispositions by emphasizing extensive practical field experiences, professional development, research, and practices that support the developmental needs of students.

OVERVIEW

Students pursuing the Master of Education in Curriculum and Instruction can also seek preparation as a secondary education teacher certified in the content areas of Biology, English Mathematics, or Social Studies.

This program is designed for the professional who holds a bachelor's degree and who seeks to obtain Pennsylvania Instructional I Teaching Certification in order to teach at the secondary level, grades 7-12.

In addition, individuals who wish to pursue teaching certification in grades 4-8 English Language Arts and Reading, Mathematics, Science, and/or Social Studies and who have earned a bachelor's degree in a related field, may also be eligible for the program.

All potential candidates are encouraged to request a transcript evaluation and to meet with the Program Coordinator to discuss requirements and scheduling options. Individuals who meet enrollment qualifications and who are currently employed as full-time substitute teachers may be eligible to complete the program while continuing in their district position.

The program offers flexibility of scheduling and rolling admission options for summer, fall, and spring. Courses, except those that have a field experience component, are conveniently offered online to accommodate work and family schedules. Gannon University provides graduate learners with the tools to engage in leadership activities, instructional innovation, and ongoing assessment.

In each of the core courses, the graduate learner submits assignments that are labeled as Key Assessments. These assignments are reviewed by the course instructor. At the conclusion of the core courses, the graduate learner submits a final, electronic reflection which is reviewed by the Program Coordinator.

Individuals seeking initial teaching certification are also required to complete a professional portfolio. The professional portfolio is intended to demonstrate and document the professional educator's knowledge, skills, abilities, performances, and professionalism. At the university level, portfolios must demonstrate the degree to which the teacher candidate has attained the outcomes designated by the School of Education and the Pennsylvania Department of Education. Equally important, the professional portfolio is a tool for the interviewing process.

Teacher candidates are required to complete more than 180 hours of field experiences and 14 weeks of student teaching. Student teaching is completed in an Erie area school district and requires the teacher candidate to be in an assigned classroom every day, all day for the full 14 weeks. Teacher candidates are encouraged to talk to their advisor early in the program so that they can take the proper course sequence and meet all certification and program requirements.

LEARNING OUTCOMES

In addition to the learning outcomes in the Master of Education: Curriculum and Instruction program, graduate learners who are seeking initial teaching certification are able to:

- Demonstrate knowledge of research-based educational belief systems and pedagogical/subject-matter content
- Demonstrate a culture of learning
- Assess and analyze student learning and make appropriate adjustments to instruction, including differentiation for diverse and exceptional learners and monitoring student progress

- Establish and reflect on ongoing professional relationships with colleagues, students, parents, school districts, and the community to enhance student learning

ADMISSION REQUIREMENTS – MASTER'S DEGREE

- A Bachelor's degree from a regionally accredited college or university and fulfillment of requirements for admission to the graduate program at Gannon University
- Final, official transcripts from all colleges attended with a minimum cumulative grade point average of 3.0 on a 4.0 scale; provisional acceptance may be granted to individuals with a GPA of 2.8.
- A completed application for admission including three letters of recommendation
- Evidence by previous academic record that the applicant has the general ability and preparation necessary to pursue graduate study successfully
- An interview with the Program Director

Before admission to the graduate program, student transcripts will be reviewed by a faculty member in the content area of intended certification as well as by the Program Coordinator in the School of Education to determine the required program of study.

When individuals who have earned a bachelor's degree in Biology, English, Mathematics, Social Studies, or related field and have passed the appropriate licensure exam, additional coursework in the content area may not be required.

Individuals must also apply and be admitted to the School of Education to be eligible for field experiences and upper-level education courses. Admission to the M.Ed. program for the purpose of pursuing teacher certification does not guarantee admission to the School of Education. Once admitted to the School of Education, the teacher candidate must complete all certification requirements as outlined in the Teacher Certification Handbook.

ADMISSION REQUIREMENTS – TEACHER CERTIFICATION

The candidate will provide the following official documentation that demonstrates:

- A B.A. or B.S. degree in the content area or related content area for which the applicant is seeking a PA Instructional I certificate
- An overall GPA of 3.0; Provisional acceptance may be granted for a GPA between 2.8 and 2.99
- All required courses in the candidate's content area of Biology, English, Mathematics, or Social Studies have been successfully completed with a grade of "C" or better
- Valid negative TB test on file in the School of Education
- Valid clearances, including Criminal Background Check, Child Abuse Clearance, and FBI Fingerprint Check have been obtained. In addition, Act 126 training and the Diocesan Child Protection Policy Inservice must be completed. To be considered valid, the applicant must submit original documents which are less than one year old. For student teaching, clearances must be less than one year old at the conclusion of the experience. Please note that the fingerprint check must be obtained by following the procedures set forth by the Pennsylvania Department of Education
- A completed application to the School of Education which includes a writing sample has been submitted

CURRICULUM REQUIREMENTS

This program requires the student to take 24 credits of core courses, 6 credits of cognate courses, and 18 credits of certification requirements.

REQUIRED CORE COURSES

The following courses are completed online.

GEDU 505 Classroom Management (3 credits)
GEDU 601 Action Research (3 credits)
GEDU 602 Program Reflection (0 credits)
GEDU 604 Educational Tests and Measurements (3 credits)
GEDU 609 Inclusive Classroom Practices (3 credits)
GEDU 612 Leadership, Current Issues, and the Teacher as Agent of Change (3 credits)
GEDU 621 School Curriculum (3 credits)
GEDU 623 Technology Literacy and Integration (3 credits)
GEDU 637 Learning Theory (3 credits)

REQUIRED COGNATE COURSES

The following credits are completed online.

GEDU 537 Special Education Overview (3 credits)
GEDU 627 Foundations of Literacy in the Secondary Program (3 credits)

This course sequence completes the requirements for the M.Ed.
Total credits for M.Ed. Curriculum and Instruction: 30

CERTIFICATION REQUIREMENTS

(16 or 17 credits)
The following additional courses and field experiences are required for teacher certification. The courses and field experiences should be taken in the following order:

GEDU 516 Instructional Design and the Classroom Management (3 credits)
GEDU 628 Secondary Education Field Experience I (0 credits)
GEDU 521 Methods and Materials of Instruction Seminar (1 credit)
GEDU 629 Secondary Education Field Experience II (0 credits)
GEDU 520 Methods and Materials for Teaching English Language Learners (ELLs)/Field Experience. 15 hrs. (3 credits). This course is offered either as an online or face-to-face course. Individuals who wish to add

	ESL specialist certification to their credentials must also enroll in GEDU 525 ESL Field Experience (1 credit)
GEDU 632	Secondary Education Field Experience III (0 credits)
GEDU 550	Student Teaching (6 credits)
GEDU 690	Professional Seminar (taken in conjunction with GEDU 550 Student Teaching) (3 credits)

Total minimum credits required for MEd with teacher certification: 46 or 47 credits

STEPS TO CERTIFICATION

1. Successfully complete all required coursework and field experiences.
2. Pass required licensure (Praxis) exam.
3. Apply for certification on the PA Teacher Information Management System (TIMS). Note: A GPA of 3.0 is required for teacher certification.
4. Gannon University recommends candidates for certification, and PDE approves and issues certification.

Master of Education: Reading and Reading Specialist Certification Program – ONLINE

Program Director: TBD

MISSION STATEMENT OF THE READING AND READING SPECIALIST PROGRAM

The mission of the Master of Education in Reading/Reading Specialist Program at Gannon University is to prepare Reading professionals who have the skills and knowledge in literacy instruction, diagnosis, and assessment to ensure that all students have the opportunities and resources to develop the literacy skills they need to reach their full potential.

OVERVIEW

Preparation in Reading is a valuable area of specialization The Master of Education in Reading provides a strong foundation in the pedagogical, curricular, and leadership dimensions of reading instruction required for key positions in literacy programs.

The MEd in Reading provides training to become a reading professional who can function collaboratively and in a variety of capacities. Preparation consists of theory, application, and implementation of research-based instruction and assessment practices.

Candidates who complete the Master of Education in Reading are eligible to apply for Reading Specialist Certification in Pennsylvania upon successful completion of the degree requirements and passing the Reading Specialist Praxis Exam. The Reading Specialist is trained in instruction and assessment techniques and given leadership opportunities to support and advance literacy programs for students, parents, other educators, and the community.

Those who already hold a master's degree in education can add the Reading Specialist Certification by completing the required 27 credits and passing the Reading Specialist Praxis Exam.

During a specified time in the summer, all candidates must complete 75 hours of clinical experience and attend a mandatory one-day orientation as part of GEDU 647 Assessment of Literacy Development/Clinical Application (Reading Clinic). The summer clinical experience is completed at an approved site under the supervision of a site-based reading specialist and a university faculty supervisor. In addition, the Pennsylvania Department of Education requires 40 hours of practicum experience (i.e., 25 hours are integrated in coursework and opportunities to complete the practicum hours vary; 15 hours are required in an ESL specific placement.).

LEARNING OUTCOMES

Upon completion of the Master of Education: Reading/Reading Specialist program, graduate learners are able to:

- Demonstrate skills to administer appropriate literacy assessments and to analyze the results to determine instructional needs
- Develop and implement coherent, inclusive lessons for all students in need of specialized literacy instruction
- Collaborate with colleagues to select and use appropriate literacy resources
- Create a respectful and culturally responsive classroom for teaching, learning, and communication
- Establish active communication with students, school personnel, and parents to enhance student learning

ADMISSION REQUIREMENTS

- A completed application for admission including three letters of recommendation from persons qualified to judge the applicant's scholarly/professional abilities and character
- Candidates applying for the M.Ed. in Reading must submit an official transcript showing completion of a bachelor's degree from a regionally accredited college or university
- Candidates applying for the Reading Specialist Certificate only, must submit a copy of their valid Instructional I or II teaching certificate in addition to an official transcript (see above)
- A graduate minimum cumulative grade point average of a 3.0 GPA on a 4.0 scale
- Evidence by previous academic record that the applicant has the general ability and preparation necessary to pursue graduate study successfully

CURRICULUM REQUIREMENTS

Transfer of credits:
Transferring credits to a program is done at the discretion of the program coordinator. Minimum requirements are that they are graduate courses from an approved institution which have a grade of "B" or better and are recorded on an official transcript, and which are no older than five years at the time of submission for consideration.

Candidates must successfully pass the Reading Specialist K-12 Praxis Exam to be eligible for certification.

Requirements for Reading Specialist Certification
(27 credits total)

GEDU 520 Methods and Materials for Teaching English Language Learners (ELLs) (3 credits)
GEDU 626 Foundations of Literacy in Elementary Programs (3 credits)
GEDU 627 Foundations of Secondary and Content Area Literacy (3 credits)
GEDU 631 Diagnosis and Correction of Reading Difficulties (3 credits)
GEDU 633 Diverse Learner Competencies for Reading Specialists (3 credits)
GEDU 640 Young Adult Literature (3 credits) **OR**
GEDU 641 Children's Literature (3 credits)
GEDU 645 Leadership and Current Issues/Practicum and Seminar (3 credits)
GEDU 647 Assessment of Literacy Development/Clinical Application (6 credits)
During a specified time in the summer, all candidates must complete 75 hours of clinical experience and attend a mandatory one-day orientation as part of GEDU 647 Assessment of Literacy Development/ Clinical Application (Reading Clinic). The summer clinical experience is completed at an approved site under the supervision of a site-based reading specialist and a university faculty supervisor

Additional Requirements for the Master of Education in Reading
(33 credits total)
GEDU 643 Overview of Curriculum Design (3 credits) or
GEDU 621 School Curriculum (3 credits)
GEDU 644 Student-Centered Action Research (3 credits) or
GEDU 601 Action Research (3 credits)

STEPS TO CERTIFICATION

1. Successfully complete all required coursework.
2. Pass required Praxis exam.
3. Apply for certification on the PA Teacher Information Management System (TIMS).
4. Gannon University recommends candidates for certification, and PDE approves and issues certification.

English as a Second Language PreK-12 Program Specialist Certificate – ONLINE

Program Director: TBD

MISSION STATEMENT OF THE ENGLISH AS A SECOND LANGUAGE PROGRAM

The mission of the English as a Second Language Program at Gannon University is to prepare teachers with the knowledge of second language acquisition and cultural competencies necessary to provide standards-based instruction and assessment for English Language Learners (ELLs) so that they may acquire the level of English proficiency needed to be successful in society.

OVERVIEW

The English as a Second Language Program Specialist Certificate is designed to prepare candidates to become leaders in second language acquisition. Candidates are prepared to support students and other teachers using their expert knowledge and skills gained through coursework and a total of 60 field experience hours. Those who complete the program gain an understanding and appreciation of various cultures as well as acquire a solid foundation in the theories and current research in second language acquisition. Coursework is delivered in an online format. Each course has a corresponding 15-hour 1-credit field experience which must be completed in the field. At least one placement must be in a PreK-12 classroom setting.

LEARNING OUTCOMES

Upon completion of the English as a Second Language (ESL) Specialist program, graduate learners are able to:

- Develop and implement coherent, inclusive lessons that meet the academic and social needs of ELLs
- Utilize effective assessments that meet the academic and social needs of ELLs
- Collaborate with colleagues to select and use appropriate resources
- Create a respectful and culturally responsive classroom for teaching, learning, and communication
- Establish active communication with students, school personnel, and parents to enhance student learning

ADMISSION REQUIREMENTS

- A completed application for admission including three letters of recommendation from persons qualified to judge the applicant's scholarly/professional abilities and character.
- A Bachelor's degree from a regionally accredited college or university with a cumulative grade point average of at least 3.0 on a 4.0 scale.

- A valid Pennsylvania Instructional I or II teaching certificate. Those applicants holding a teaching certification from another state should contact their issuing state Department of Education to determine eligibility and requirements for ESL certification in that state.
- International students must provide evidence of proficiency in English as indicated by a rating of *superior* on the Oral Proficiency Interview English Language Testing (OPI).

CURRICULUM REQUIREMENTS

Transfer of credits:
Transferring credits to a program is done at the discretion of the program coordinator. Minimum requirements are that they are graduate courses from an approved institution which have a grade of "B" or better and are recorded on an official transcript, and which are no older than five years at the time of submission for consideration.

This program requires the student to take 16 credits focused on preparation for the ESL Program Specialist Certificate. Field experiences should be completed in the same semester as the courses with which they are paired.

GEDU 518	Educational Approaches in a Multicultural Society (3 credits)
GEDU 523	Educational Approaches in a Multicultural Society Field Experience 15 hours (1 credit)
GEDU 520	Methods and Materials for Teaching English Language Learners (3 credits)
GEDU 525	Methods and Materials for Teaching English Language Learners Field Experience 15 hours (1 credit)
GEDU 519	Structures of English (3 credits)
GEDU 524	Structures of English Field Experience 15 hours (1 credit)
GEDU 517	Assessment and Support for English Language Learners (3 credits)
GEDU 522	Assessment and Support for English Language Learners Field Experience 15 hours (1 credit)
Total credits required for ESL Certificate	**16 credits**

Principal PK-12 Certification Program – ONLINE

Program Coordinator: Mr. Stephen F. Corsi
(814) 871-5399 • corsi008@gannon.edu

MISSION STATEMENT OF THE PRINCIPAL PK-12 CERTIFICATION PROGRAM

The mission of Gannon University's Principal Preparation Program is to prepare principals as instructional leaders who effectively and ethically bring about continuous school improvements that result in increased student achievement.

PRINCIPAL AS AGENT OF SCHOOL REFORM

The Principal Preparation Program is designed around the conceptual framework of *The Principal as Agent of School Reform* and is designed to meet the Pennsylvania Leadership Standards.

All the courses in the certification program are approved to meet the Act 48 professional development requirement and are also approved as foundational courses for Gannon's Ph.D. in Organizational Learning and Leadership.

PROGRAM DISTINCTIONS

Program Delivery Model for Working Professionals
Classes meet online. The 12-month online program allows the complete flexibility that busy educators need to accommodate work and family. Travel to Gannon University is not required during the program.

Leadership Assessment
Each candidate takes part in a leadership assessment prior to the capstone internship experience. This assessment helps to establish the focus of the internship and ensures that the candidate has a well-rounded experience under the direction of a principal.

Cohort
The design of Gannon's program is based on effective models of adult learning. The program provides candidates in an online cohort community the opportunity to cooperate and collaborate throughout the sequence of five connected core courses, four of which have job concurrent internships. Once the online learning community is formed, it becomes the basis of a strong professional network that continues to provide support and professional development for the candidates as they move through their leadership careers.

Program Advisor
Every candidate is assigned a Program Advisor who serves as the consistent point of contact and mentor throughout the candidate's program.

Highly Qualified Faculty
Courses are taught by highly qualified content experts who are successful practitioners in their respective fields. These faculty members are either current principals or individuals who have administrative experience.

Differentiated Internships
The internships begin during the first course at the introductory level, continue through key skills areas at the developmental level, and culminate during the last course in a mastery level capstone internship. This differentiated model allows candidates to have guided practice and formative feedback from faculty mentors and experienced practitioners throughout the program.

Length of Internships
The internship experiences take place throughout the program so that candidates are involved in critical leadership responsibilities involving students, faculty and staff, strategic planning, curriculum development, budgeting, and other key areas of district culture. The internships vary in length from 20 to 35 hours and the Principal Mastery Internship is 235 hours, which equates to 360 total internship hours in the PreK-12 Principal Certification program.

Principal Professional Portfolio
Candidates develop a Principal Professional Portfolio throughout their courses and internship learning experiences and present the portfolio as a capstone activity. The portfolio is a very effective tool in career advancement.

LEARNING OUTCOMES

Upon completion of the advanced certification Principal program, candidates will be able to:
- Demonstrate knowledge of instructional, strategic, and operational leadership
- Design and lead staff in professional development
- Evaluate data to inform decision making
- Demonstrate the impact of change within a school environment

ADMISSION REQUIREMENTS

Applicants must:
- Complete an application for admission.
- Submit an official transcript from a regionally accredited college or university which verify a master's degree in Education or a related field and a minimum cumulative GPA of 3.0 on a 4.0 scale, plus transcripts showing any additional graduate-level coursework.
- Submit three letters of recommendation, including one from the current superintendent and one from the current building principal. The letters from the superintendent and principal must speak to the candidate's potential to become an effective school leader and acknowledge permission for the candidate to engage in internship activities throughout the year.
- Submit documentation of three years of educational experience working under a certificate. Candidates may be admitted with two years of experience if they will have completed three years of experience by the time their program concludes.

Transfer of credits:
Transferring credits to a program is done at the discretion of the program coordinator. Minimum requirements are that they are graduate courses from an approved institution which have a grade of "B" or better and are recorded on an official transcript, and which are no older than five years at the time of submission for consideration.

Core courses and portfolio (21 credits over three semesters)
September-October
3 credits GEDU 720 Quality Teaching, Continuous Improvement, and Professional Accountability
1 credit GEDU 725 Principal Introductory Internship (35 hours)
October-December
3 credits GEDU 722 School Financial Management
1 credit GEDU 726 School Financial Management Developmental Internship (35 hours)
January-March
2 credits GEDU 730 Diverse Learner Competencies for School Leaders
1 credit GEDU 731 Diverse Learner Competencies for School Leaders Developmental Internship (35 hours)
March-May
3 credits GEDU 721 Principal as Agent of School Reform
May-August
2 credits GEDU 723 Legal Aspects of Educational Administration
1 credit Legal Aspects of Educational Administration Developmental Internship (20 hours)
3 credits GEDU 728 Principal Mastery Internship (235 hours)
1 credit GEDU 732 Principal Professional Portfolio

STEPS TO CERTIFICATION
1. Successfully complete all required coursework.
2. Pass required Praxis exam.
3. Apply for certification on the PA Teacher Information Management System (TIMS).
4. Gannon University recommends candidates for certification, and PDE approves and issues certification.

RECOMMENDATION
Candidates enrolled in the Principal PK-12 program should consider adding the Supervisor of Curriculum and Instruction certification to their credentials once they have completed the principal program. The supervisory certification is a value-added component to one's principal certification.

ALTERNATE ROUTE TO PRINCIPAL CERTIFICATION (Provisional Administrative Level I Certification)
Under certain conditions, candidates who hold a bachelor's degree may attain principal certification though an alternative route. Three years of documented relevant professional experience in an educational setting and a certified offer of employment as a principal, vice principal, or assistant principal are required, along with additional coursework completed within two years of employment as a principal, vice principal or assistant principal. For more details, please contact the program director.

District-Wide Supervisory Certificate: Curriculum and Instruction – ONLINE

Program Coordinator: Mr. Stephen F. Corsi
(814) 871-5399 • corsi008@gannon.edu

MISSION STATEMENT OF THE DISTRICT-WIDE SUPERVISORY CERTIFICATE: CURRICULUM AND INSTRUCTION

The mission of Gannon University's District-wide Supervisory Certification in Curriculum and Instruction program is to prepare school administrators for the role of a district-wide specialist who works across the total grade organization and is responsible for supervising instruction and evaluating staff, designing and developing curriculum and innovative educational programs, conducting experimental instructional initiatives and directing and conducting applied educational research.

OVERVIEW

The Curriculum and Instruction Supervisor is a district-wide specialist who works across all grade levels of a school entity. Candidates who successfully complete the principal certification program at Gannon University may elect to take an additional 9 credits of coursework to be eligible to apply for certification as a Curriculum and Instruction Supervisor. Candidates who have completed their principal certification program at another institution may need 9-17 credits based upon a transcript review. **In addition, candidates must have an Instructional II Pennsylvania teaching certificate**. Candidates must also take and pass a Praxis examination prior to receiving their certification from the Pennsylvania Department of Education.

LEARNING OUTCOMES

Upon completion of the District-Wide Supervisory Certification in Curriculum and Instruction program, candidates will be able to:

- Demonstrate knowledge of instructional, strategic, and operational leadership
- Design and lead staff in professional development
- Evaluate data to inform decision making
- Demonstrate the impact of change within a school environment

CURRICULUM REQUIREMENTS

Transfer of credits:
Transferring credits to a program is done at the discretion of the program coordinator. Minimum requirements are that they are graduate courses from an approved institution which have a grade of "B" or better and are recorded on an official transcript, and which are no older than five years at the time of submission for consideration.

For individuals who have successfully completed Gannon's Principal PreK-12 certification program, the nine credits listed below are required. A transcript review is required for all other candidates.

GEDU 616 School and Community Relations (3 credits online)
GEDU 617 Administration of School Personnel (3 credits online)
GEDU 713 Supervisory Mastery Internship (3 credits/360 hours)

STEPS TO CERTIFICATION

1. Successfully complete all required coursework.
2. Pass required Praxis exam.
3. Apply for certification on the PA Teacher Information Management System (TIMS).
4. Gannon University recommends candidates for certification, and PDE approves and issues certification.

Superintendent Certification/ Letter of Eligibility Program – ONLINE

Program Coordinator: Mr. Stephen F. Corsi
(814) 871-5399 • corsi008@gannon.edu

MISSION STATEMENT OF THE SUPERINTENDENT CERTIFICATION/ LETTER OF ELIGIBILITY PROGRAM

The mission of Gannon University's Superintendent Preparation Program is to prepare superintendents to be strategic system leaders who effectively and ethically bring about continuous system improvements that result in increased student achievement.

SUPERINTENDENT AS STRATEGIC SYSTEM LEADER

The Superintendent Letter of Eligibility Program is designed around the conceptual framework of *The Superintendent as Strategic System Leader* and is designed to meet the Pennsylvania Leadership Standards.

All courses in the certification program are approved to meet the Act 45 professional development requirement for practicing administrators and are also approved as foundational courses for Gannon's Ph.D. in Organizational Learning and Leadership.

PROGRAM DISTINCTIONS

Program Delivery Model for Working Professionals
Classes meet online. The 12-month online program allows for the complete flexibility required for busy educators to accommodate work and family. Travel to Gannon University is not required during the program.

Leadership Assessment
Candidates take part in a leadership assessment prior to the capstone internship experience. This assessment helps to establish the focus of the internship and ensures that the candidate has a well-rounded experience.

Cohort
The design of Gannon's program is based on effective models of adult learning. The program provides candidates in an online cohort community the opportunity to cooperate and collaborate throughout the sequence of five connected core courses, four of which have job concurrent internships. The online learning community formed becomes the basis of a strong professional network that continuous to provide support and professional development for the candidates as they move through their leadership careers.

Program Advisor
Every candidate has a Program Advisor who serves as the consistent point of contact and mentor throughout the candidate's program.

Highly Qualified Faculty
Courses are taught by highly qualified content experts who are successful practitioners in their respective fields. These faculty members are either current superintendents or individuals who have relevant central office experience.

Differentiated Internships
The internships begin during the first course at the introductory level, continue through key skills areas at the developmental level and culminate during the last course in a mastery level capstone internship. This differentiated model allows candidates to have guided practice and formative feedback from university faculty mentors and experienced practitioners throughout the program.

Length of Internships
The internship experiences take place throughout the program so that candidates are involved in critical leadership responsibilities involving students, faculty and staff, strategic planning, curriculum development, budgeting, and other key areas of district culture related to a superintendent's position. The internships vary in length from 20 to 35 hours and the Superintendent Mastery Internship is 235 hours, which equates to 360 total internship hours in the Superintendent Letter of Eligibility program.

Superintendent Professional Portfolio
Candidates develop a Superintendent Professional Portfolio throughout their courses and internship learning experiences and present the portfolio as a capstone activity. The portfolio is a very effective tool in career advancement.

LEARNING OUTCOMES

Upon completion of the Superintendent Letter of Eligibility Certification program, candidates are able to:
- Demonstrate knowledge of instructional, strategic, and operational leadership
- Design and lead staff in professional development
- Evaluate data to inform decision making
- Demonstrate the impact of change within a school environment

ADMISSION REQUIREMENTS

Applicants must:
- Complete an application for admission.
- Submit an official transcript from a regionally accredited college or university which verify a master's degree in Education or a related field and a minimum cumulative GPA of 3.0 on a 4.0 scale, plus transcripts showing any additional graduate-level coursework.
- Submit three letters of recommendation, including one from the current superintendent. The letter from the superintendent must speak to the candidate's potential to become an effective system leader and acknowledge permission for the candidate to engage in internship activities throughout the year.
- Submit evidence of six years of satisfactory school experience of which at least three must be in a supervisory or administrative capacity.

CURRICULUM REQUIREMENTS

Transfer of credits:
Transferring credits to a program is done at the discretion of the program coordinator. Minimum requirements are that they are graduate courses from an approved institution which have a grade of "B" or better and are recorded on an official transcript, and which are no older than five years at the time of submission for consideration.

Courses and portfolio (21-23 credits over three semesters)

September-October	
3 credits	GEDU 740 Superintendent as Architect of Standards-based Reform
1 credit	GEDU 748 Superintendent Introductory Internship (35 hours)
October-December	
3 credits	GEDU 744 Business Administration and Finance in Public Education
1 credit	GEDU 747 Business Administration and Finance in Public Education Developmental Internship (35 hours)
January-March	
2 credits	GEDU 743 Collective Bargaining and Labor Relations
1 credit	GEDU 746 Collective Bargaining and Labor Relations Developmental Internship (35 hours)
2 credits	GEDU 730 Diverse Learner Competencies for School Leaders (based on transcript review)

March-May

3 credits	GEDU 741 Superintendent as Strategic System Leader

May-August

2 credits	GEDU 742 Educational Facilities and School Plant
1 credit	GEDU 745 Educational Facilities and School Plant Developmental Internship (20 hours)
3 credits	GEDU 750 Superintendent Mastery Internship (235 hours)
1 credit	GEDU 751 Superintendent Professional Portfolio

STEPS TO CERTIFICATION

1. Successfully complete all required coursework.
2. Pass required Praxis exam.
3. Apply for certification on the PA Teacher Information Management System (TIMS).
4. Gannon University recommends candidates for certification, and PDE approves and issues certification.

ALTERNATIVE ROUTE TO SUPERINTENDENT PK-12 CERTIFICATION (Commission Qualification Letter Process)
In certain circumstances, a Commission Qualification Letter (CQL) may be issued to an applicant who holds a graduate degree from an accredited higher education institution in business, finance, or management, and provides evidence of four years of relevant business, finance, or management work experience in the fields of business, industry, or education. The CQL is not a credential. It is a letter that confirms that the candidate met alternative route requirements to be commissioned as a superintendent or assistant superintendent in Pennsylvania. The CQL requires, among other things, completion of a Leadership Development Program that meets the Pennsylvania School Leadership Standards under Section 1217 during the initial contract term as a superintendent or assistant superintendent in Pennsylvania. For more information, please contact the program director.

Autism Spectrum Disorder (ASD) Endorsement – ONLINE

An Endorsement is a credential attained through an approved program. It is a minimum of 12 credits and is available in new and emerging areas where formal certification does not exist. The Program Endorsement is intended to improve a teacher's skills in dealing with complex classroom settings. Once satisfactorily completed, the ASD endorsement may be added to existing Pennsylvania Level I or Level II teaching certificate or advanced certificate. Endorsements are not required to perform services for those individuals with Autism.

CURRICULUM REQUIREMENTS

3 credits	GEDU 512 Autism Spectrum Disorders: Theory and Practice
1 credit	GEDU 513 Autism Spectrum Disorders: Field Experience 1
3 credits	GEDU 526 Autism Spectrum Disorders: Applied Behavior Analysis and Intervention
1 credit	GEDU 527 Autism Spectrum Disorders: Field Experience 2
3 credits	GEDU 531 Autism Spectrum Disorders: Strategies for Social Competence
1 credit	GEDU 532 Autism Spectrum Disorders: Field Experience 3

Please note that current Pennsylvania Department of Education standards and regulations take precedence over any information described in this document. Should these standards and regulations change, Gannon will change its requirements. Teacher and advanced certification candidates will be responsible for meeting the new guidelines for certification. Please refer to the PDE website at *http://www.education.pa.gov*

COURSE DESCRIPTIONS

GEDU 505 Classroom Management
3 credits
This course is a study of major educational disciplines, theory, and practical application for teachers as they use their knowledge and skills for effective classroom management. Graduate learners discover how to deal with disrespect, defiance, disruption, bullying, violence, and many other problems they must handle.

GEDU 512 Autism Spectrum Disorders: Theory and Practice
3 credits
This course is an introduction to the education and habilitation of children diagnosed with autism spectrum disorder (ASD). The course concentrates on historical development, identification, assessment, and characteristics, including communication and social skills, of ASD. Instructional interventions are also identified and examined. The course is a competency-based course which will be delivered in a seven-week online modality.

GEDU 513 Autism Spectrum Disorders: Field Experience 1
1 credit
This course is a field experience taken concurrently or upon completion of GEDU 512 Autism Spectrum Disorders: Theory and Practice. The experiential learning takes place in an educational or therapeutic setting for 30 hours. The candidate observes, serves as a teacher aide, and begins to practice skills. Online communications are required during this course. **GEDU 513 is required only for those seeking ASD Endorsement.**

Please note: For individuals who live in the Erie area, arrangements for the practicum will be done by the School of Education. For individuals who live outside of the Erie area, special arrangements will need to be made. The individual must contact the Program Coordinator prior to enrolling in GEDU 513 to discuss the practicum site arrangements.

GEDU 516 Instructional Design and Classroom Management
3 credits
This course introduces teacher candidates to creating and managing instruction in the learning environment. Candidates develop standards-based lessons demonstrating connections among curriculum, instruction, and assessment that result in successful learning. As candidates develop an understanding of the scope and sequence of instructional planning, emphasis is placed on application of learning theories, research-based instructional practices, and effective feedback strategies. Candidates examine approaches for differentiated instruction to meet student needs. In addition, teacher candidates develop effective techniques and strategies for classroom organization and management, ensuring a safe, valued, and respectful environment for all learners. Effective interactions with instructional support staff, paraprofessionals, and parents are discussed throughout the course. The 60-hour field experience associated with this course is an Observation and Exploration (Stages 1 and 2) experience that takes place throughout the semester.

GEDU 517 Assessment and Support for English Language Learners (ELLs)
3 credits
This seven-week online course is designed to expand graduate learners' knowledge of effective assessment practice and support services available for ELLs. Graduate learners explore purposes and uses of assessment, assessment models, assessment scaffolding, and formal/informal assessment tools. The availability of school support services to assist ELLs in language acquisition and content learning and ways to promote parental/family involvement with their children's educational program are examined. Graduate learners gain hands-on experience in test administration, interpretation, and reporting. Also, Individualized Education Plans for ELLs identified as special education candidates are reviewed. **Graduate learners in this course who are pursuing ESL certification must also register for GEDU522. Those who are not pursuing ESL certification are not required to register for GEDU 522.**

GEDU 518 Educational Approaches in a Multicultural Society
3 credits
This course explores critical multiculturalism, the ways in which schooling intersects with cultural identities, and how educators can be advocates for social justice. Graduate learners examine cross-cultural communication and the relationship between language and culture in educational contexts. **Graduate learners in this course who are pursuing ESL certification must also register for GEDU 523. Those who are not pursuing ESL certification are not required to register for GEDU 523.**

GEDU 519 Structures of English
3 credits
This seven-week online course examines (American) English usage, fundamentals of linguistics, literacy development, and current theories in first and second language acquisition. Knowledge of English components (i.e., morphology, syntax, phonology) and understanding of the human context is essential for teachers. **Graduate learners in this course who are pursuing ESL certification must also register for GEDU 524. Those who are not pursuing ESL certification are not required to register for GEDU 524.**

GEDU 520 Methods and Materials for Teaching English Language Learners (ELL)
3 credits
This course provides graduate learners with a survey of current research and theory in English as a Second Language (ESL) and teaching English Language Learners (ELLs). Fifteen hours of field experience are embedded throughout the course, providing learners with an opportunity to observe in an ESL setting. The course is offered in both face-to-face and online modalities. **Graduate learners in this course who are pursuing ESL certification must also register for GEDU 525. Those who are not pursuing ESL certification are not required to register for GEDU 525.**

GEDU 521 Methods and Materials of Instruction Seminar
1 credit
This course is designed for middle level, secondary, and special education PreK-12 majors. It emphasizes teaching methodologies, standards-based instruction, and integration of content areas. Candidates prepare effective lessons in specific content areas and select instructional methods and materials appropriate for adolescents. To provide an opportunity for candidates to work with a content expert in their field, a 60-hour Pre-student Teaching (Stage 3) field experience for 7-12 majors and 15 hours for all other Education programs accompany the course.

GEDU 522 Assessment and Support for English Language Learners Field Experience
1 credit
This course is taken concurrently with GEDU 517 only by those pursuing ESL certification. The field experience is a 15-hour course that allows for the application of skills and knowledge learned in GEDU 517. During the field experience, graduate learners observe effective assessment practices and participate in implementing an assessment of an ELL.

GEDU 523 Educational Approaches in a Multicultural Society Field Experience
1 credit
This 15-hour course is taken concurrently with GEDU 518 only by those pursuing ESL certification. During the field experience, graduate learners conduct a cultural assessment through observation and interaction with a group of ELL students and put into practice the concepts and skills learned in GEDU 518.

GEDU 524 Structures of English Field Experience
1 credit
This 15-hour course is taken concurrently with GEDU 519 only by those pursuing ESL certification. During the field experience, graduate learners observe an ELL, apply those insights and knowledge to a classroom setting, and put into practice the concepts and skills learned in GEDU 519.

GEDU 525 Methods and Materials for Teaching English Language Learners (ELLs) Field Experience
1 credit
This 15-hour course is taken concurrently with GEDU 520 only by those pursuing ESL certification. During the field experience, graduate learners apply instructional strategies and put into practice the concepts and skills learned in GEDU 520.

GEDU 526 Autism Spectrum Disorder: Applied Behavior Analysis and Intervention
3 credits
This course is designed to identify the components of applied behavior analysis (ABA) and the development of effective behavioral interventions pertaining to children and adolescents diagnosed along the autism spectrum. Focus is given to identification of the causes and function of behaviors, the assessment and diagnosis of behavioral issues, and the development and implementation of effective behavior and therapeutic treatment plans. The course participants will be able to assess, develop, implement, and evaluate effective behavioral and therapeutic intervention plans using a variety of positive behavioral supports and management techniques.

GEDU 527 Autism Spectrum Disorders: Field Experience 2
1 credit
This course is a field experience taken concurrently or upon completion of GEDU 526 Autism Spectrum Disorders: Applied Behavior Analysis and Interventions. The experiential learning takes place in an educational or therapeutic setting for 30 hours. The candidate observes, serves as a teacher aide, and begins to practice skills. Online communications are required during this course. **GEDU 527 is required only for those seeking ASD Endorsement.**

GEDU 531 Autism Spectrum Disorder: Strategies for Social Competence
3 credits
This course is designed to identify the components of language and social skills and the development of those skills as they pertain to children and adolescents with ASD. Emphasis will be placed on information processing and the development of language, communication strategies, pragmatics, augmentative, and alternative communication systems. This course will also focus on social skills deficits and approaches for teaching social skills to students with ASD.

GEDU 532 Autism Spectrum Disorders: Field Experience 3
1 credit
This course is a field experience taken concurrently or upon completion of GEDU 531 Autism Spectrum Disorders: Strategies for Social Competence. The experiential learning takes place in an educational or therapeutic setting for 30 hours. After approval from the cooperating teacher, the candidate is expected to take over most of the responsibilities of the day. Online communications are required. **GEDU 532 is required only for those seeking ASD Endorsement.**

GEDU 537 Special Education Overview
3 credits
This course provides candidates with a basic understanding of the federal mandates associated with special education. Candidates are introduced to the characteristics of various exceptionalities; pre-referral strategies and interventions; cultural diversity; curricular and behavioral modifications, adaptations, and instructional strategies; educational assessment; historical legislations and current legal issues in special education; and the collaboration of regular education and special education teachers. Focus is on the special education process for evaluation, identification, eligibility determination, and placement of students with exceptionalities in special education.

GEDU 540 American Sign Language (ASL) I
3 credits
This course teaches a basic vocabulary of 300-500 signs used in ASL in conversational settings by Deaf and hearing signers. Graduate learners are introduced to important aspects of ASL grammar and culture and are given a brief introduction to hearing loss and some practical issues in the education of Deaf culture.

GEDU 541 American Sign Language (ASL) II
Prerequisite: GEDU 540
This course teaches more advanced vocabulary of signs used in ASL. It also analyzes conversational settings of various Deaf and hearing signers. Detailed aspects of ASL grammar and ASL culture are taught. A major emphasis is placed on expressive signing by graduate learners. Practical issues in Deaf culture and in Deaf education are discussed.

GEDU 550 Student Teaching
6 credits
Prerequisite: School of Education Permission
This experience in the field encompasses one full semester of directed observation and supervised student teaching, with gradual assumption of total teaching responsibilities. This course is taken in conjunction with GEDU 690 Professional Seminar.

GEDU 591 Seminar: Selected Topics in Education
1 credit

GEDU 592 Seminar: Selected Topics in Education
2 credits

GEDU 593 Seminar: Selected Topics in Education
3 credits

GEDU 600 Fundamentals of Applied Statistics
3 credits
Prerequisite: A beginning course in descriptive statistics.
This is an intermediate to advanced course in statistics applicable to educational research settings. The general emphasis is on commonly used inferential and parametric techniques with a brief review of descriptive statistics. Topics covered include correlation, linear and multiple regression, sampling and sampling distributions, t-test, chi-square, one and two factor Analysis of Variance, and parametric statistics.

GEDU 601 Action Research
3 credits
This course provides graduate learners with an opportunity to gain an understanding of the action research process and to enhance their professional growth as research-practitioners. Participants engage in critical analysis of published professional literature and professional reflection while developing an action research proposal that can lead to improvements in curricular and/or instructional design.

GEDU 602 Program Reflection
0 credit
After completing eight key assessments throughout the core courses, this final 4-6-page submission answers a series of targeted questions that require graduate learners to reflect upon their entire experience in the program.

GEDU 604 Educational Tests and Measurements
3 credits
This course is aligned with national standards for teacher competence in assessment and is designed to prepare teachers to effectively use multiple measures of assessment to inform teaching practices. Specific skills include developing and utilizing assessments and interpreting assessment results.

GEDU 609 Inclusive Classroom Practices
3 credits
This course explores elements needed to develop a productive learning environment for diverse learners and examines methods used to provide effective instruction to diverse students through the lens of collaboration, co-teaching, and research-based strategies.

GEDU 612 Leadership, Current Issues and the Teacher as Agent of Change
3 credits
A major theme in the master's program is *Teacher as Agent of Change*. The graduate learner has the dual opportunity of examining leadership concepts and of applying those concepts to successfully address current issues as they affect the school setting. In addition, graduate learners examine and build on their own leadership capacity.

GEDU 616 School and Community Relations
3 credits
This course allows graduate learners to recognize the school as a dynamic cultural entity. Graduate learners assess the school's interdependence on the community and its many stakeholders and identify the importance of a strong public relations plan that communicates with and understands the community involved.

GEDU 617 Administration of School Personnel
3 credits
This course studies dimensions in school personnel administration and includes the principles of recruitment, selection, and practices essential to a functional integration of the individual into the school system.

GEDU 621 School Curriculum
3 credits
Curriculum is a multi-faceted field of study directly linked to instruction and assessment. Through this course, graduate learners view curriculum as a body of knowledge and a process by exploring the theory, history, purposes, and evolution in curriculum. Factors which shape curriculum are thoroughly reviewed, and current trends are examined. A strong effort is made to provide practical information with specific relevancy to each participant.

GEDU 623 Technology Literacy and Integration
3 credits
Educators need to be well-versed in current technologies. Effective teachers model and apply technology integration as they design, implement, and assess learning experiences to engage students and improve learning using technology. Through the use of online web resources and collaborative tools, graduate learners study, evaluate, and find applications for technology in their classrooms.

GEDU 624 Writing Project Summer Institute
3 credits
This course emphasizes improving student writing skills by using various methods of practicing writing across the curriculum.

GEDU 626 Foundations of Literacy in Elementary Programs
3 credits
This course explores components of the elementary reading program: emergent literacy, phonemic awareness, phonics, fluency, vocabulary, and text comprehension, as well as literacy programs and procedures in the elementary school. State and national standards are also addressed.

GEDU 627 Foundations of Secondary and Content Area Literacy
3 credits
This course focuses on the examination of the reading process as it pertains to the secondary school level. Specifically, this course examines current theory and best practices in integrating the language systems, thinking strategies, and instructional methods

that support the curricula from middle school through high school. Practical strategies and materials to promote literacy, assessment, integration of technology, and literacy competencies in content areas, are the focal points of this course.

GEDU 628 Secondary Education Graduate Field Experience I
0 credit
This 60-hour experiential learning opportunity is an Observation and Exploration (Stages 1 and 2) experience in an educational setting assigned by the Coordinator of Clinical Experiences. The focus is on classroom interaction and student observation and is linked to GEDU 516.

GEDU 629 Secondary Education Graduate Field Experience II
0 credit
This 60-hour experiential learning opportunity is a Pre-student teaching (Stage 3) experience and takes place in an educational setting assigned by the Coordinator of Clinical Experiences. In additional to observation, this field experience offers candidates the opportunity to teach all or parts of several lessons and to complete tasks at the direction of the cooperating teacher.

GEDU 631 Diagnosis and Remediation of Reading Difficulties
3 credits
Diagnosis and Remediation of Reading Difficulties prepares the candidate to evaluate the variances in reading strengths and weaknesses through the use of formal and informal diagnostic tools. This course is designed to provide an examination of traditional, as well as newly developed perspectives and insights necessary to provide for effective assessment and instruction for students with reading difficulties.

GEDU 632 Secondary Education Graduate Field Experience III
0 credit
This 60-hour experiential learning opportunity is a Pre-student Teaching (Stage 3) experience and takes place in an educational setting assigned by the Coordinator of Clinical Experiences. The requirements of this field experience include teaching at least three lessons, planning a unit, and completing tasks at the direction of the cooperating teacher.

GEDU 633 Diverse Learner Competencies for Reading Specialists
3 credits
This course develops the knowledge and skills required by Reading Specialists to be collaborative partners in providing support for all children in inclusive settings and to provide specialized leadership for the development of programs for diverse learners. The course focuses on issues such as over representation of diverse students in special education, prevention and early intervention, and effective instructional strategies for students with disabilities in inclusive settings.

GEDU 637 Learning Theory
3 credits
This course examines human learning processes, factors that influence learning, and major learning theories. Graduate learners relate learning theory to effective teaching practices and conduct research.

GEDU 640 Young Adult Literature
3 credits
This comprehensive course reviews young adult literature genres, authors, and selection of books for young adults.

GEDU 641 Children's Literature
3 credits
This comprehensive course consists of the critical examination of children's books and outstanding writers and illustrators in the field of children's literature.

GEDU 643 Overview of Curriculum Design
3 credits
This course is a study of styles and processes for implementing school curriculum, with a focus on the integration of literacy including reading, writing, listening, and speaking. The course addresses issues dealing with perceptions, professionalism, and change, and examines various school curriculum models including the Pennsylvania Department of Education Standards Aligned System for standards-based curriculum design.

GEDU 644 Student Centered Action Research
3 credits
The Student-Centered Action Resource Course is aligned with the Standards for Reading Professionals developed by the International Literacy Association. Teachers are introduced to the techniques involved in conducting action research. Action research allows teachers to investigate an evidence-based problem, collect data, and analyze the data to improve instructional decision making at the practitioner level that leads to improvements in curricular and instructional design.

GEDU 645 Literacy and Leadership/Practicum and Seminar
3 credits
Prerequisites: GEDU 626, GEDU 627, and GEDU 631.
This course is taken in conjunction with GEDU 647. The course is designed to focus upon current issues in literacy and leadership. Graduate learners complete a 25-hour literacy and leadership practicum.

GEDU 647 Assessment of Literacy Development/ Clinical Practicum
6 credits
Prerequisites: GEDU 626, GEDU 627, and GEDU 631. This course is taken in conjunction with GEDU 645.
The course provides experience in formal and informal assessment and data interpretation. Graduate learners are responsible for

implementation of instructional programs based upon assessment data. A 75-hour clinical practicum is required. See Master of Education Reading/ Reading Specialist Certification Program Online Overview.

GEDU 679 Curriculum Design and Instructional Technique in Environmental Education
3 credits
Graduate learners explore various educational processes that deal with people's relationship with their total environments, including the interaction of population, pollution, resource allocations and depletions, conservation, transportation, and technology with a focus on urban and rural planning as it relates to the total human environment. Participants also review current programs and materials in environmental education as well as current research projects.

GEDU 690 Professional Seminar in Education
3 credits
In this course, teacher candidates reflect upon the student teaching experience. Discussion focuses on current topics in education and the prediction and solution of issues in a variety of school situations. Candidates prepare for employment through activities connected with the construction of their professional portfolios. This course is taken in conjunction with GEDU 550 Student Teaching.

GEDU 696 Directed Research and Special Topics
2-4 credits
Prerequisite: GEDU 601
In this course, students refine their research from the prerequisite courses and complete chapter 4 and 5 of their research paper.

GEDU 713 District-wide Supervisory Certificate in Curriculum and Instruction Internship (360 hours)
3 credits
This course is the capstone experience of the District-wide Curriculum and Instruction Supervisory Certificate program. The course provides experiences for developing and enhancing the overall effectiveness of the candidate's competencies. Emphasis is given to direct involvement in the administration of curriculum, instruction, and assessment at sites mutually acceptable to the candidate and the program coordinator.

GEDU 720 Quality Teaching, Continuous Improvement, and Professional Accountability
3 credits
This course focuses on the role of the principal as the instructional leader, along with collaborative efforts of the instructional staff, in bringing about quality teaching, continuous improvement, and professional accountability. By the end of the course, candidates are expected to demonstrate their understanding of school personnel policies and procedures that provide the organizational boundaries for accountability and the importance of school and community relations in an effective instructional program.

GEDU 721 The Principal as Agent of School Reform
3 credits
This course equips principal candidates with leadership skills and knowledge grounded in standards-based theory and design. Candidates are expected to be able to create a culture of teaching and learning in a school through effective leadership and operational management, effective communication, ethical behavior, and advocacy for children

GEDU 722 School Financial Management
3 credits
This course examines the factors, including legal, that govern financial policies and practices in schools, sources of revenue, budgeting, disbursement of funds, school plant, records, and insurance. Emphasis is on knowledge and understanding of the major tasks and methods involved in meeting financial responsibilities in the school and the educational system.

GEDU 723 Legal Aspects of Educational Administration
2 credits
This course focuses on the major areas of school law with particular emphasis on the Pennsylvania School Code. The courses deals with topics such as tort liability of school officials and teachers, the legal structure of public education, control of pupil conduct, desegregation, church-school relations and education, teachers' rights and responsibilities, pupils' rights, professional negotiations, the courts and the curriculum, the use of school property and money, IDEA, FERPA, and issues in special education.

GEDU 725 Principal Introductory Internship
1 credit
This internship experience takes place throughout GEDU 720 so candidates are involved in critical leadership responsibilities involving students, faculty, and staff; strategic planning; curriculum development; budgeting; and other key areas of district culture related to a principal's position.

GEDU 726 School Financial Management Developmental Internship (35 hours)
1 credit
This internship experience takes place throughout GEDU 722 so candidates are involved in examining factors governing financial policies and practices in schools, sources of revenue, budgeting, disbursement of funds, school plant, records, and insurance.

GEDU 727 Legal Aspects of Educational Administration Developmental Internship (20 hours)
1 credit
This internship experience takes place throughout GEDU 723 so that candidates are involved in examining the major areas of school law with emphasis on the Pennsylvania School Code.

GEDU 728 Principal Mastery Internship (235 hours)
3 credits
This course is the capstone leadership course in the principal preparation program. The internship requires candidates to work in a school district, initiating specific activities that provide leadership experience as an instructional leader and agent of school reform.

GEDU 729 Principal Certification Independent Study
1-3 credits
This course is designed to provide graduate learners with the opportunity to organize and conduct research in educational administration under the supervision of a faculty member but independent of scheduled meetings and regular assignments.

GEDU 730 Diverse Learner Competencies for School Leaders
2 credits
This course develops the knowledge and skills required to provide leadership for the development of programs for diverse learners. The course focuses on issues such as over representation of diverse students in special education, prevention and early intervention, and effective instructional strategies for students with disabilities in inclusive settings.

GEDU 731 Diverse Learner Competencies Internship (35 hours)
1 credit
The internship experience takes place throughout GEDU 730 and is designed for the practical application of skills and concepts learned in the course.

GEDU 732 The Principal Professional Portfolio
1 credit
Throughout the principal certification program, candidates develop a professional portfolio of artifacts under the guidance of a mentor/ portfolio advisor.

GEDU 740 The Superintendent as Architect of Standards Based Reform
3 credits
The course begins with establishing the urgency for school reform by examining the assumptions that reinforce the status quo. The Every Student Succeeds Act (ESSA) and past school reform models are reviewed to gain an understanding of their implications to school systems. Superintendent candidates then explore practical aspects of guiding systems through the standards-based reform process.

GEDU 741 Superintendent as Strategic System Leader
3 credits
This course is grounded in the continuum of systems thinking and operating principles needed for strategic planning that leads to improved student achievement. A broad-based view of current research is reviewed and practical application of the research is discussed.

GEDU 742 Educational Facilities and School Plant
2 credits
This course is designed to familiarize the prospective administrator with the issues and problems of new plant construction, the renovation and rehabilitation of existing buildings, and facility maintenance. The utilization of demographic, curricular, resource, and energy data, as well as state building construction guidelines, are presented and examined.

GEDU 743 Collective Bargaining and Labor Relations
2 credits
This course enhances leadership through the study of negotiations and labor relations in public education. Topics and issues explored include an in-depth analysis of contract negotiations, grievance procedures, mediation, and arbitration for all school employees. Theories and practices in staff recruitment, selection, assignment, orientation, evaluation, professional development, and retrenchment are studied.

GEDU 744 Business Administration and Finance in Public Education
3 credits
This course identifies and assesses methods of educational planning and financing for staff, instructional processes, and physical plant; the study of federal and state funding sources; the nature of taxing authorities; the subsidy system; grants and entitlements to public education; and future trends and options in creative financial planning. An in-depth investigation of budget preparation, long and short-term investing, bonding, under-writing, tax collecting, and construction planning takes place.

GEDU 745 Educational Facilities and School Plant Developmental Internship (20 hours)
1 credit
This course is taken throughout GEDU 742 and is designed for the practical application of skills and concepts learned in the course.

GEDU 746 Collective Bargaining and Labor Relations Developmental Internship (35 hours)
1 credit
This course is taken throughout GEDU 743 and is designed for the practical application of skills and concepts learned in the course.

GEDU 747 Business Administration and Finance in Public Education Developmental Internship (35 hours)
1 credit
This course is taken throughout GEDU 744 and is designed for the practical application of skills and concepts learned in the course.

GEDU 748 Superintendent Introductory Internship (35 hours)
1 credit
This course is taken throughout GEDU 740 and is designed for the practical application of skills and concepts learned in the course.

GEDU 749 Superintendent Certification Independent Study
1-3 credits
This course is designed to provide graduate learners with the opportunity to organize and conduct research in educational administration under the supervision of a faculty member but independent of scheduled meetings and regular assignments.

GEDU 750 Superintendent Mastery Internship (235 hours)
3 credits
This course is the capstone leadership course in the superintendent preparation program. The candidate is required to work in a district to initiate specific activities that will provide leadership opportunities in the role of the superintendent as strategic system leader.

GEDU 751 Superintendent Professional Portfolio
1 credit
Throughout the superintendent certification program, candidates develop a professional portfolio of artifacts under the guidance of a mentor/portfolio advisor.

GUAP 520-597 Special Topics
3 credits

GUEC 550-599 Special Topics
3 credits

GUSD 530-562 Special Topics
3 credits

Important Note: Current Pennsylvania Department of Education (PDE) standards and regulations take precedence over any information described in this catalog. Should those standards and regulations change, Gannon University will change its requirements. Candidates will be responsible for meeting the new guidelines for certification. Please refer to the PDE website at *www.education.pa.gov* for changes in regulations.

Electrical and Cyber Engineering

Director: Wookwon Lee, D.Sc., P.E.

INTRODUCTION

The world of electrical and cyber engineering is an ever-changing one. The advances in technologies over a new graduate's professional career of approximately 40 years will be phenomenal. While the undergraduate coursework puts a solid foundation in mathematics, engineering science, and humanities, as well as the ability to tackle and solve new problems in a forthright manner, graduate school is the next step in a lifetime of learning for both new graduates and experienced working professionals who have been out a few years and recognize the need for more education.

The graduate program in Electrical and Cyber Engineering (ECE) is designed to provide advanced studies for those who wish to continue preparation for effective participation in the professions of electrical, software, and systems engineering. The program also provides continuing education in advanced subjects for experienced working engineers who desire to stay abreast of the rapidly changing technological world. Emphasis is placed on the development of the engineer's capacity for independent study and continued professional growth.

PROGRAM OBJECTIVES:

The program is designed to guide students to build technical competency, and effective communication and leadership skills.

1. Demonstrate professional ethics and personal values in daily and professional life that exercise informed literary and aesthetic judgments by leveraging diverse cultures and societies
2. Demonstrate teamwork and leadership qualities and/or attainment of leadership roles in a global work environment
3. Demonstrate technical competency in applying comprehensive engineering knowledge throughout their chosen profession

DEGREES OFFERED

Housed in the College of Engineering and Business, the program offers

- **Master of Science in Electrical Engineering (MSEE)** degree and
- **Master of Science in Embedded Software Engineering (MSES)** degree.

ADMISSION REQUIREMENTS

1. Applicants must have earned a Bachelor's degree in Electrical or Computer Engineering from an ABET accredited program or its equivalent with a QPA of 2.5 or better.
2. Applicants with non-electrical or computer engineering degrees may be admitted, but required to take additional course work as determined by the program director.
3. Applicants must submit the following:
    - Completed application
    - Transcripts for all prior college coursework
    - Three recommendation letters
    - TOEFL scores if English is not the first language

CURRICULUM

Upon commencement of graduate studies, the student will choose to study for an Electrical Engineering or Embedded Software degree. The student will be assigned an initial advisor by the program director. The advisor and student will select appropriate courses for the objectives of the student and obtain approval of this course of study through the academic approval sequence. All students must take the following two courses for the first 12 credits:

Course Requirements:

GECE 502 Embedded C Programming
GECE 704 Advanced Engineering Analysis

All students must complete at least one systems development course before graduation. Systems development courses include:

GECE 501 Engineering Project and Management
GENG 580 Requirements Engineering
GENG 570 Introduction to Systems Engineering

After the student has completed 12 credits of study, the student will be assessed relative to their preparedness to begin thesis or project work. The candidate must have a 3.0 QPA to continue for the degree. The candidate must then choose one of the three projects/thesis plans below for completion of their degree and an advisor will be assigned to guide the candidate for the completion of the degree work. Students cannot register for project/thesis credits until after 12 credits of graduate work are completed (see plans A, B, and C below). The degrees require a total of 30 credit hours of graduate work. Up to 6 credits of approved graduate work can be transferred from another graduate program.

Graduate students intending to pursue two Master's degrees simultaneously (see Dual Majors for more information) or a second Master's degree (see Second Master's Degree for more information) in the Electrical and Cyber Engineering department must be first admitted into the second-degree program before any coursework toward the second Master's degree.

Plan A (Thesis):
The candidate will be required to submit a 6 credit thesis as part of the 30 credits of graduate course work and pass a final oral examination on the thesis material and related subjects. The thesis work must be approved by the faculty and program director prior to the commencement of the research work. The thesis advisor will direct the student's work and determine when to recommend the manuscript for review by a faculty committee. The review committee will be appointed by the program director and shall consist of at least three full-time Gannon engineering faculty members familiar with the subject material and one member outside the ECE department. The outside member can be from industry. The faculty advisor will be the chair of the review committee.

Plan B (Project):
The student will be required to complete a design project and to pass a final examination covering the student's project and related subject areas. The project can be worth 3 or 6 credits as part of the 30 credits of graduate course work depending on the difficulty of the project. The project must be approved by the faculty and program director prior to the commencement of the project work. The project advisor will direct the student's work and determine when to recommend the manuscript for review by a faculty committee. The review committee will be appointed by the faculty and program director and shall consist of at least three full-time Gannon engineering faculty members familiar with the subject material and the faculty advisor will be the chair of the review committee.

Plan C (Project Course):
The student will be required to complete a 3 credit course designated as a project course. The program director will approve the project course prior to the commencement of the project work and must include a significant project for its completion. The course instructor will inform the student of the complete requirements for the project course and oversee the work to ensure that the student satisfies these requirements. Students are required to prepare a manuscript in the thesis format for the project.

DEGREE PROGRAMS

Electrical Engineering Degree
The program's goal is to give an Electrical and Cyber Engineering graduate the necessary education to be an effective design or systems engineer. The student shall devise a curriculum with his/her advisor to pursue knowledge in advanced control theory, system modeling, electronics, communication, systems engineering, and embedded software. The student must complete at least 9 credits of Electrical Engineering program courses and satisfy the project/thesis requirement in Electrical Engineering.

Embedded Software Engineering Degree
The program's goal is to give an Electrical and Cyber Engineering graduate the necessary education to be an effective embedded software/systems engineer. The student shall devise a curriculum with his/her advisor to pursue knowledge in computer hardware and software implementation strategies, software development, software quality measures, software design and testing techniques, microprocessors, digital system design and/or hardware description languages. The student must complete at least 9 credits of Embedded Software Engineering program courses in system, software, hardware categories, and satisfy the project/thesis requirement in a topic related to Embedded Software Engineering.

Five-Year Accelerated B.S./M.S.
The Five-Year Bachelor of Science/Master of Science degree in Electrical Engineering is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate and a graduate degree within five years. Admission into the accelerated Five-Year B.S./M.S. program will be based on several factors, including past academic performance, and considerations of overall aptitude and maturity. Students in their junior year, second semester (or one semester before reaching senior standing) with a minimum 2.8 cumulative GPA, can apply for this program. Students accepted into this program should plan to complete specific first-year graduate courses during the senior year, and in the following summer term, with completion of all degree requirements in the following academic year. Students admitted to the Five-Year B.S./M.S. program may apply up to 6 graduate credits towards completion of the B.S. degree.

CO-OP Track
The objective of the CO-OP track is to present an academic program combined with application training on actual industrial problems in engineering environments. This is to give students a targeted education on real-world problems. Students may join this program after completing sufficient coursework to succeed in an industrial environment and receive approved industrial sponsorship. International students participating in a CO-OP are required to contact the Office of Global Support and Student Engagement to apply for Curricular Practical Training before engaging in any CO-OP activity.

Students accepted to the co-op track are assigned a Gannon professor as a mentor, and must take the Graduate Professional Experience (GENG 700-series) course each semester they are enrolled in the program.

Students must complete 30 credits of graduate course work in addition to their Graduate Professional Experience courses. Students must maintain a cumulative grade point average of at least 3.0 for the duration of their master's degree program, and fulfill all other requirements for their degree.

Professional Track
Gannon runs a two-year work-study program with the local industry in Erie. The objective of the track is to present an academic program combined with application training on actual industrial problems to give students a targeted education, complemented by hands-on, real-world development exposure. Students are selected for this track based on academic background, leadership skills, and communication skills. The student is assigned a Gannon professor as a mentor while working at the industrial site. The mentor advises the student on his academic work and guides the student on industrial engineering projects. The projects are carefully chosen to reinforce classroom work and to develop the students into outstanding engineers. In addition to the mentorship in technical areas, the professor also mentors the student in leadership skills, work and personal ethics, and communication skills that are needed in the industrial workplace. This track requires that the student work on these projects half time during the school year and full time during the summer. The students receive full tuition and a yearly stipend for their work. Students need to apply and be accepted separately for this program. The number of students in this track is dependent on the availability of industrial sponsorship.

The students earn either an Electrical Engineering degree or an Embedded Software Engineering degree. There are two tracks for the program:

Embedded Software track (leads to Embedded Software degree) and the Systems and Modeling track (leads to Electrical Engineering degree). All students in the professional track must have an equivalent background (academic or professional) in Automatic Control. Furthermore, all students in the Embedded Software track must have an equivalent background in C++ and Data Structures.

The recommended curriculum is as follows:

Embedded Software	**Systems and Modeling**
Summer Second Session	
Intro to Embedded Systems Orientation and Curricular Practical Training (CPT)	Intro to Embedded Systems Orientation and Curricular Practical Training (CPT)
Fall First Semester	
Engineering Analysis I#*	Engineering Analysis I#*
Requirements Engineering*	Requirements Engineering*
Adv Digital Design	System Modeling*
CPT	CPT
Spring Second Semester	
Engineering Analysis II*	Engineering Analysis II*
Embedded Kernel*	Adv Programming in C/C++
Embedded Systems Design*	Electric Machine Modeling*
CPT	CPT

Summer	
CPT	CPT
Fall Third Semester	
RTOS Applications+	Control of Electric Drives
Hw/Sw Co-design	Power Electronics
Personal Software Process*	Elective
CPT	CPT
Spring Fourth Semester	
Project/thesis	Project/thesis
Elective	Digital Control
Elective	Elective
CPT	CPT

Substitutions for this course may be approved by the advisor and Department Chair.
* Required courses for professional track
+ special topic electives

COURSE DESCRIPTIONS

Courses of Interest for All Options

GECE 501 Engineering Project and Management
3 credits
This is one of the core courses for electrical and cyber engineering graduate students. The engineering development process from inception to a product will be covered. The function of systems engineering is to guide the engineering of complex systems that is the collection of components, people, facilities, and procedures organized to accomplish some common objectives. This course will focus on the skills required to manage the development of effective system architectures from concept through engineering design and production. Topics include, but are not limited to, the structure of complex systems, project management, system development process, requirement specifications, functional decomposition, system modeling techniques and modern toolsets, hardware-in-the-loop simulation and control, system testing, and oral and written communication issues.

GECE 502 Embedded C Programming
3 credits
This course is designed for students to build a solid foundation in embedded programming using the C language. Intermediate C programming techniques and embedded environment considerations will be discussed. Contents of the course include C and embedded systems, program structure, variables and memory implication, flow control, arrays, pointers, structure and union, functions, I/O's, preprocessor directives, GNU development tools, and basic UNIX/LINUX operations.

GECE 509 Software Tools
3 credits
Prerequisite: GENG 585
Focus on the Unix programming environment and the various tools for software development, application environments and techniques. Topics include operating systems, standards, real-time programming, concurrency, software testing, metrics, IPC techniques, scripting, compilers, interactive debugging.

GECE 704 Advanced Engineering Analysis
3 credits
This course focuses on theory and application of linear algebra, ordinary differential equations, Laplace transform, Fourier analysis, partial differential equation, probability and statistics for solving engineering problems. Application of Matlab.

GENG 570 Introduction to Systems Engineering
3 credits
The function of systems engineering is to guide the engineering of complex systems, that is the collection of components, people, facilities and procedures organized to accomplish some common objectives. This course explores the life cycle of systems, and the skills required to manage the development of effective system architectures from concepts through engineering design and production. Topics include, but are not limited to the structure of complex systems, system development processes, systems engineering management, needs analysis, systems requirements management, program risk, functional analysis and design, integration and system evaluation.

GENG 580 Requirements Engineering
3 credits
Requirements engineering process from initial requirements elicitation through to requirements validation for systems engineering. The course includes specific techniques for the analysis, modeling, validation, and management of requirements for engineering projects, and is applicable to software, mechanical, electrical, process and other types of engineering projects. Topics include requirements processes, documents, elicitation, analysis, management, modeling, viewpoint analysis, non-functional requirements, advanced topics.

GENG 582 Fuzzy Control
3 credits
This course provides a fundamental understanding of fuzzy logic with application to control theory. The methodology provides a method for constructing nonlinear controllers via the use of heuristic information for real-world problems. The fuzzy controller emulates the decision-making process of the human. Engineering evaluations of performance and comparative analysis with conventional control methods are used.

GENG 585 Advanced Programming In C/C++
3 credits
Problem analysis. Translation path from pseudo-code to implementation. Comparison of C and C++ implementations. Critical evaluation of time, memory, and program structure. Programming style.

GENG 586 Object-Oriented Modeling
3 credits
Prerequisite: GENG 580 or GCIS 504 or 566 or 567 or permission of instructor
An advanced treatment of methods for producing an object-oriented design, including structural, behavioral, and architectural design. Focus is on Object-Oriented analysis and design methods and design processes they support. Includes treatment of the Unified Modeling Language (UML) techniques and their application to systems/ software development

GENG 590-599 Special Topics in Engineering
3 credits
Special courses developed from study interest in all areas of Engineering. Brief description of current content to be announced in the schedule of classes.

GENG 603 Engineering Analysis I
3 credits
The theory and application to engineering problems of Laplace transforms, generalized Fourier transforms and Linear Algebra.

GENG 609 Nonlinear Analysis
3 credits
Introduction to the understanding of nonlinear characteristic of mechanical and electrical components and systems. Basic analytical, graphical and numerical methods are presented. Introduction to chaotic dynamics and nonlinear control.

GENG 648 Modeling and Simulation of Dynamic Systems
3 credits
This interdisciplinary course presents mathematical modeling methods for physical dynamic systems containing electrical, mechanical, and control components. Included are the application of physical principles, energy approaches, non-dimensional techniques, and discretization of continuous systems. Numerical simulation of linear and nonlinear models will be studied and compared to experimental results. Problems of current interest will be used as examples.

GENG 678 System Testing
3 credits
Prerequisite: GENG 586
This course covers the fundamentals of testing engineering systems and their models. Includes coverage of types of testing, fundamental problems in testing, purposes for testing, testcase design, quality assurance and test planning. Topics include prototype testing, validation testing, acceptance testing, and other topics.

GENG 689 Stability Analysis of Multidimensional Dynamic Systems
3 credits
Fundamental concepts of stability for carious classes of dynamic systems are examined and discussed. The systems considered include multidimensional lumped-parameter systems that can be described by linear differential equations. The systems under consideration are divided into certain well-defined classes, and various phenomena related to vibrations and stability of these systems are exposed systematically. Although the course examples are drawn from mechanical systems, the general nature of formulation can be applied to systems of similar nature in other disciplines, such as electrical circuits.

GENG 690-699 Special Topics in Engineering
3 credits
Special courses developed from study interest in all areas of Engineering. Brief description of current content to be announced in the schedule of classes. Graduate courses in the 600 series are open to graduate students only.

GENG 700-702 Graduate Professional Experience
1 credit
Prerequisite: Discipline-specific industrial sponsorship
This course complements regular academic training with hands-on, real-world development exposure. Students are required to be engaged in practical training during the course. International students require Curricular Practical Training (CPT) approval. Topics include issues facing engineering and computing professionals, trends in the fields, job prospects, team and workplace behavior, project leadership as well as reviews of speaking, listening, reading and writing skills.

GENG 703 Engineering Analysis II
3 credits
Solving engineering problems using ordinary differential equations, partial differential equations, series solutions to differential equations. Complex analysis applied to engineering problems.

GENG 796 Directed Project
3-6 credits
Those students choosing their research project option will complete a directed research project. The student must submit a project proposal to the department for approval. Upon approval of the topic, the department Chair will appoint a three-member committee to oversee the project. The student will perform the literature search, complete the project, and submit a project report that conforms to department thesis guidelines, and pass an oral defense.

GENG 797 Thesis
3-6 credits
Those students choosing the thesis option must select a directed project with a research component. The student must submit a thesis proposal to the department for approval. Upon approval of the topic, the department Chair will appoint a three-member committee to oversee the project. The student will perform the

literature search, complete the project, submit a thesis report that conforms to department thesis guidelines, and pass an oral defense. Additionally, thesis students are expected to submit a paper on their work suitable for publication.

Courses of Interest for Embedded Software Engineering Option

GECE 500 Introduction to Embedded Systems
3 credits*
This course orients students to embedded system concepts and gives different embedded system applications. The course is structured as a series of lectures and training sessions at General Electric Transportation System work site. Topics include but not restricted to the following: Software QSP/QSW, DC locomotive overview, ISO9000 overview, CSE overview, Toll Gate overview, OTC overview, DFSS training, Software Process, Traction System overview, RMD overview, OHV overview, System Integration overview, IFC overview, Formal Technical overview, DC Simulator overview, FTR recording, Simulink training.
*3 credit hours – does not apply toward the degree requirement.

GECE 506 Personal Software Process
3 credits
Prerequisite: GENG 585
The Personal Software Process (PSP) is a process-based method that software engineers use in the development of large-scale projects. It uses quality management principles and the Capability Maturity Model (CMM) framework to demonstrate the benefits of using sound engineering principles in software development and maintenance work. Defect management, design and code reviews, design templates, and process analysis will be used. Here, the students progress through a sequence of software processes that provide a sound foundation for large scale software development.

GECE 508 Embedded Software Paradigms
3 credits
Prerequisites: GENG 585
Course focuses on the design and development of embedded and real-time systems. Embedded software design techniques and considerations. Overview of embedded systems and software design processes. Systems and software quality considerations. Hardware tools and trends.

GECE 510 Software Engineering Processes
3 credits
Prerequisite: GENG 585
Fundamental embedded software design techniques and considerations. Fundamental Method Goals of quantity, repeatability, measurability. Design and Analysis Methodologies focusing on object-oriented design and testing. Design processes of waterfall, spiral, and knowledge-based. Risk analysis, software project management, including knowledge strategies plus economics and metrics of a software project.

GECE 511 Embedded Kernel
3 credits
Real-time embedded kernel development and implementation. Begins with the implementation of a non-preemptive kernel, add features, and transform into a preemptive kernel. Topics include interrupt management, time management, task management, inter-task communication and synchronization, and memory management.

GECE 515 Software Testing and Quality Assurance
3 credits
This course is concerned with understanding the role of quality assurance in the software development cycle and applying these techniques to software products. Course topics include test design methods, test planning, automated test support, quality measurement and quality tracking techniques.

GECE 539 Real-time System Implementation
3 credits
This is a project-oriented course. It is designed for students to get familiarity and hands-on experiences with the real-time system implementation process using Matlab Real-time Workshop and Real-time Workshop Embedded Coder tools.

GECE 545 Advanced Digital Design
2 credits
Co-requisite: Take concurrently with GECE 546.
Advanced topics in top-down digital design and bottom-up verification are introduced. Combinatorial and sequential logic design, circuit aspects of logic devices, families, and interfaces are reviewed. CAD tools using schematic and hardware description language based design entry for simulation, synthesis; post-synthesis analysis and implementation on a programmable target device are exposed. Industry-standard integrated design and development environments will be used throughout the course.

GECE 546 Advanced Digital Design Lab
1 credit
Laboratory to accompany GECE 545 Advanced Digital Logic. Must be taken concurrently with GECE 545.

GECE 547 Embedded Systems Design
3 credits
This is a project-oriented course. It is designed to deliver the concepts of microprocessor-based design flow and hardware/software design integration. Discussions include CPU architectures, instruction sets, interrupts, peripheral configurations, software development, real-time operating system, as well as hardware-in-the-loop debugging and testing.

GECE 549 VHDL
3 credits
This is an introductory course for the VHDL hardware description language that targets the programmable logic and ASIC design. The usage of the language in representation, simulation, verification and synthesis areas is studied with extensive lab assignments. Essential syntax and semantics of the VHDL language including design

entity, architectural bodies, concurrent and sequential statements, processes, data types, packages, configurations, register transfer level design are among the covered topics.

GECE 550 Hw/Sw Co-Design
3 credits
Top-down system level embedded design for large-scale systems containing hardware and software components are considered. Development flow shall include a) requirements to design specifications b) hardware and software partitioning c) trade off analysis between self-development and reuse for intellectual property and real-time OS d) HDL-based hardware design, simulation and testing, e) OO software design, simulation and verification.

GECE 551 Rapid Prototyping with FPGA
3 credits
Field Programmable Gate Arrays (FPGAs) has become an essential part of the digital system design flow for many applications. They provide inexpensive solutions for hardware prototypes and the fastest time-to-market. The novelty and programmability also allow design explorations towards optimal architecture. This course will cover the FPGA features and architectures, rapid prototyping aspects of FPGA use, FPGA configuration techniques, hardware simulation and debugging, as well as the modern digital synthesis and hardware analysis skills and tools. Other commercial programmable logic devices (PLD) will also be discussed.

GECE 552 Data Integrity on Computer Networks
3 credits
This course provides the concepts, theory (algorithms) and techniques (protocols/standard) to deliver data integrity on computer networking. Topics include Data Integrity on data communication (i.e., Transmission Media, and Transmission and Multiplexing) and on computer network (i.e., Data Security, Flow Control, Wire/Wireless network, and Internet Protocols/ Applications/Programming). Students perform Data Integrity on data communication (1/2) and on computer network (1/2).

GECE 553 Real-Time Simulator
3 credits
This course provides the concepts and hardware/software modeling techniques to deliver real-time data processing and signal acquisition on real-time applications. Topics include hardware modeling based on FPGA implementation in VHDL and software modeling based on Matlab/Simulink.

GENG 586 Object-Oriented Modeling
3 credits**

** Please see course description in the Course of Interest for All Options

Courses of Interest for Electrical Engineering Option

GECE 520 Advanced Instrumentation and Measurement
3 credits
This course emphasizes the use of National Instruments (NI) tools to perform data acquisition, measurement techniques and instrument control. Data acquisition will include analog and digital I/O, signal conditioning and sensors. Measurement techniques will include time-frequency analysis, data filtering, and distortion measurements. Instrument control will include serial port, GPIB communications and instrument drivers.

GECE 521 VLSI Design
3 credits
Focuses on the theory, design, implementation, and testing of Very Large Scale Integrated (VLSI) Circuits and associated technologies. Primarily focuses on CMOS technologies and their implementation. Includes a review of CMOS circuits and theory, overview of MOS fabrication technology, circuit characterizations and performance estimation, electrical and physical design of logic gates, clocking strategies, I/O structures, system design and test methods, design synthesis, and advanced topics.

GECE 527 Intro to Electric Drives
3 credits
This course uses an integrative approach to allow examination of all subsystems that make up an electric drive system. The approach requires minimum prerequisites in circuit and system and electromagnetic field theory to understand the essentials of the topics covered. The topics covered include electric machines, power-electronics-based converters, understanding mechanical system requirements, feedback controller design, and interaction of drives with the utility grid.

GECE 528 Modern Control Theory
3 credits
Linear spaces and operators, mathematical descriptions of systems. Linear dynamical systems and impulse response, matrices. Controllability and observability of linear dynamical systems. Irreducible realizations of rational transfer function matrices. Canonical forms, state feedback and state estimators. Stability of linear systems. Composite systems; linear optimal control and linear distributed systems.

GECE 529 Digital Control
3 credits
This course deals with the control of dynamic systems by employing classical and model control tools incorporating a digital computer in the control loop. It provides the background needed for those practicing engineers, who have studied the concepts of continuous-time control, to enhance their knowledge in the area of digital control system. Topics include the Z-transform, digital control system design, filters design, and the state-space approach to control system design. Modern software tools such as Matlab/Simulink will be used.

GECE 530 Sensors and Actuators
3 credits
This is an introductory course on the subject of control system instrumentation, with an emphasis on sensors, transducer, and actuators. Specifically, this course deals with "instrumentation" a control system through the incorporation of suitable sensors, actuators, and associated interface hardware. The control system architectures are reviewed first prior to detailed discussion of the component interconnection and signal conditioning, and performance specification and analysis. Then the operation principles and characteristics of a series of analog sensors and digital transducers are studied. Finally, the stepper motors, as well as continuous-drive actuators (DC and AC motors), are covered.

GECE 531 Electronic Systems Design and Integration
3 credits
This is a hands-on laboratory-based course with emphasis on design and integration of electronic systems. Industry-standard tools such as the circuit simulation software (e.g. Orcad Capture CIS, PSpice), the Printed Circuit Board (PCB) design software (e.g. Cadence Layout Plus), PCB maker (e.g. LPKF ProtoMat), and its related software (e.g. CircuitCam) will provide the platform to build, test, and validate systems/subsystems, such as basic OP-AMP circuits, analog computer, traffic light control, power subsystems, bridge driver subsystem, and driver system integration. Electronic systems design and integration will be emphasized through laboratory projects.

GECE 537 Advanced Computer Architecture
3 credits
Focuses on the design and implementation of the instruction-set architecture. Performance measures, ALU design, data and control path design, evolving into custom high-performance processor design using VHDL, pipelining, memory hierarchy design, cache memory and advanced topics.

GECE 545 Advanced Digital Design
2 credits*

GECE 546 Advanced Digital Design Lab
1 credit*

GECE 547 Embedded Systems Design
3 credits*

GECE 549 VHDL
3 credits*

GECE 552 Data Integrity on Computer Networks
3 credits*

GECE 553 Real-Time Simulator
3 credits*

GECE 556 RF Circuit Integration
3 credits
Application of concepts from Circuits, Electronics and Fields to radio frequency design techniques as applied to state-of-the-art electronic devices.

GECE 565 Power Electronics
3 credits
This course introduces the basic concepts of various topologies (ac-dc, dc-dc, dc-ac, ac-ac, etc.) of power converters. The fundamental principles of switching components are discussed first prior to introduction of the design and application of the converters. Emphases are on the design issues associated with the converters and the computer techniques (PSpice) used for the performance evaluation and analysis. Experiments are part of the course.

GECE 566 Modeling and Analysis of Electric Drives
3 credits
This course introduces the issues in modeling and analysis of electrical drives. Basic concepts of electromechanical energy conversion will be presented before the detailed modeling of the dynamical aspects of both the DC and AC machines. Dynamic behavior of the machines and their computer simulation will be examined. Numerical schemes for simulation, singular perturbation technique, linearization technique, etc. are parts of the analysis tools. In addition, modeling of switching power conversion will be studied as it pertains to drive application. If time permits, some other practical aspects of drives will be examined, too.

GECE 567 Integration of Renewable Energy into Electric Power System
3 credits
This course is designed to provide general technical education in all major electricity generating with renewable energy sources and their integration in electric power systems. Different types of renewable energy resources will be studied for the following aspects: the available form, the feature of electricity generation, how to integrate into electric power system, and the impact on the electric power system, etc. The course also stresses the importance of power electronics technology in the process of power conditioning and controlling. The decentralized electric power system concept will be introduced. The future development of renewable energy technologies and the way that power systems may evolve to accommodate them will be discussed.

GECE 572 Digital Signal Processing
3 credits
This course emphasizes the fundamental principles of signal and systems, sampling theorem, discrete-time Fourier transform, power spectrum, z-transform, discrete Fourier transform (DFT) and the FFT algorithm, digital filter design and implementation.

GECE 573 Introduction to Neural Networks
3 credits
Data management, pattern recognition and classification, neural networks models, learning schemes, genetic algorithms, applications of neural networks.

GECE 574 Artificial Neural Networks
3 credits
Prerequisite: GECE 704
This course will present artificial neural network (ANN) architectures and computational algorithms suited for practical engineering applications. Topics will include an overview of artificial neural networks and neural computing, elementary ANN building blocks and models. Concepts of learning and training rules, the back-propagation algorithm as well as examples and discussion of several classes of ANN such as feed-forward networks, multilayer networks, recurrent networks, and self-organizing networks will be presented.

GECE 575 DSP System-level Design and Integration
3 credits
Prerequisite: GECE 572
This is a hands-on laboratory-based course with emphasis on design and integration of digital signal processing (DSP) systems. Industry-standard tools such as NI-LabVIEW, Matlab/Simulink, and TI-DSK processor boards will provide the platform to build and test systems such as analog-to-digital converters (ADC), sampling rate converters, digital FIR and IIR filters, spectrum analyzers. DSP implementation and system integration will be emphasized through laboratory projects such as dual-tone multi-frequency analysis, adaptive noise cancellation, and software-defined radio.

GECE 583 Introduction to Communication Systems
3 credits
This course emphasizes Fourier Series/ Transform, frequency shifting concepts ideally and in reality. Analog modulation techniques and technology including enhancement techniques (AM, SSB and FM), sampling theory and digital modulation (PAM, PWM, PPM, PCM). Noise considerations in determining best SNR technique. Multiplexing and practical examples included.

GECE 584 Power System Analysis and Control
3 credits
Basic principles in power system analysis; models for elements of power system components, the per unit system, Load flow analysis; optimal dispatch of generation; synchronous machine transient analysis; balanced faults; symmetrical Components and unbalanced faults; stability; power system control.

GECE 585 Wireless System Applications
3 credits
This course will cover topics in wireless and mobile communications and their application to the design of systems and networks. These topics will include cellular concepts, beam formation, path loss, fading, and multi-path in radio propagation, digital modulation formats, equalization, diversity, coding, and multiple access techniques. Wireless local area networks (WLAN), global system for mobile (GSM), and wideband CDMA (W-CDMA) will be discussed.

GECE 586 Computer Communication Networks
3 credits
This course introduces fundamental concepts and theories in data and computer communications and networking. Topics include data transmission techniques and encoding for data communication, networking techniques, circuit and packet switching, and network access protocols.

GECE 587 Wireless Data Communications
3 credits
This course introduces a comprehensive list of topics in the emerging field of wireless data communications. Focused on upper layer (above the physical layer) protocols and operations for wireless data transmission. Topics include wireless cellular system infrastructures, wireless circuit data, wireless packet data, mobile IP, and packet data in third generation wireless networks. Various existing and soon-to-be available wireless data systems and technologies are also discussed.

GECE 588 Simulation of Communication Systems
3 credits
Comprehensive course for simulation-based design and analysis of communication systems; Focused on the physical layer in the context of the OSI-layer model of communication systems, topics include modeling of communication systems, performance measures and statistical methods for interpretation of simulation results, simulation techniques and technology, and case studies.

GECE 590-599 Special Topics in Electrical Engineering
1-3 credits
Special courses developed from study interest in all areas of Electrical Engineering and Embedded Software. Brief description of current content to be announced in schedule of classes.

GECE 625 Advanced Control Systems
3 credits
This course treats the analysis and design of linear control systems from the point view of state space representations. Topics will include system modeling, coordinate transformation, controllability, observability, output feedback, state feedback, linear quadratic regulators, and linear estimators. Additionally, an introduction to nonlinear control is presented with the topics of feedback linearization and adaptive control. Applications from interdisciplinary current state-of-art systems will be presented.

GECE 626 Advanced Control Technologies
3 credits
This course emphasizes the applications of advanced control technologies. The advanced control technologies covered in this course include active disturbance rejection control, reduced-order active disturbance rejection control, discrete active disturbance rejection control, and discrete time optimal control. Applications

include motor control, power systems, chemical processes, and micro-electro-mechanical systems.

GECE 671 Design of Electrical Machinery
3 credits
A design-oriented course which emphasizes realistic characteristics and specifications applicable to AC and DC motors and generators leading to an individual design project.

GECE 672 Digital Image Processing
3 credits
Prerequisite: GECE 572
This course presents strategies to process digital image data. Topics covered will include the representation and perception of images, the use of operations in the spatial and spatial-frequency domains to segment, enhance, filter, and restore digital images as well as transformations of images for multi-resolution analysis. Algorithms will be implemented and evaluated in Matlab/Simulink.

GECE 673 Control of AC Drives
3 credits
This course introduces the concept of AC drives. Various types of converters and inverters suitable for AC drives and the related control issues are presented and studied. The modeling and dynamical aspects of AC machines will be examined prior to the detailed discussion of the control issues and techniques such as vector control and field orientation, etc.

GECE 680 Digital Communication
3 credits
This is a graduate course in the analysis of digital communication systems. Methods to understand and analyze digitally modulated signals are presented. Optimum receiver designs, synchronization issues, and coding strategies for different channel models are developed. Communications over fading, multipath and band-limited channels is studied using Code Division Multiple Access (CDMA) schemes and Spread Spectrum (SS) approaches.

GECE 681 Optical Devices and Systems
3 credits
This course is an introduction to electroptics. This includes wave propagation, interaction with both iso and anisotropic materials, modulation techniques, lenses and lens systems and optical sources and detectors. Subsystems are considered initially but typical optical systems and applications are considered.

GECE 690-699 Special Topics in Electrical Engineering
1-3 credits
Special courses developed from study interest in all areas of Electrical Engineering or Embedded Software. Brief description of current content to be announced in schedule of classes. Graduate courses in the 600 series are open to graduate students only.

* Please see course description in the Embedded Software Engineering Option

Engineering Management

Director: David Gee, Ph.D.

INTRODUCTION

The graduate program in Engineering Management is designed to provide advanced studies for the graduate engineer who wishes to continue preparation in the profession as an engineering manager or project director/leader. The program provides continuing education in advanced engineering and business/management subjects for the working engineer who acknowledges the need to stay abreast of the rapidly changing technological and business world. Emphasis is placed on the development of the engineer's capacity for independent study and continued professional growth.

Students in the program accrue multiple benefits including enhanced technical knowledge together with a firm understanding of the business aspects in which a company must master. Required core engineering courses include project management, risk management, and reliability. Required core business courses include the technological environment of business and staples from business administration and/or business analytics. After completing the program, students will have gained new insight including how management perceives engineers. Your new expertise will provide a boost to your technical abilities as well as to enhance your skills as an effective leader and decision maker.

DEGREE OFFERED

The Master of Science in Engineering Management is administered by the department of Mechanical Engineering within the College of Engineering and Business.

ADMISSION REQUIREMENTS

1. Applicants must have earned a Bachelor's degree in Engineering from an ABET-accredited program or its equivalent, with a GPA of 2.5 or better.
2. Applicants without the appropriate engineering degree may be admitted and required to take additional course work as determined by the program director.
3. Applicants must submit the following:
   - Completed application
   - Transcripts for all prior college coursework
   - Three recommendation letters
   - TOEFL/other scores if English is not the first language.

CURRICULUM

The student will be assigned an initial academic advisor. The advisor and the student will select appropriate courses to satisfy the program's degree objectives and will obtain approval for the curriculum through the academic approval process. The candidate must maintain a 3.0 GPA to continue for the degree.

A total of 30 credits will be required, including three core courses (9 credits) from business, four core courses (12 credits) from engineering, and three elective courses (9 credits).

Required Courses – Business: 3 courses (9 credits) including:
GMBA 615 Technological Environment of Business

Select two courses from the Business Administration (MBA) – Online program or Business Administration (MBA) – Business Analytics program.

Visit the graduate catalog for Business Administration (MBA) to view GMBA course options. Many of these courses have Peregrine Academic Leveling Course (ALC) material prerequisites. Any ALC prerequisite must be completed before starting the GMBA course. Note, ALC Foundations of Quantitative Research Techniques and Statistics (QUANT) will be automatically satisfied for Eng. Mgmt students.

Required Courses – Engineering: 4 courses (12 credits) from the list below:
GENG 621 Reliability Engineering
GENG 622 Risk Management
GENG 623 Decision Making Under Uncertainty
GENG 624 Project Management

Elective Courses: Upon approval by their academic advisor, select 3 courses (9 credits) from among the following disciplines:

Engineering – GENG, GME, GBME, GENV, GECE, GCYSEC, GCIS 6xx level course, GMBA

Five-Year Accelerated B.S./M.S.
The five-year Bachelor of Science/Master of Science degree in Engineering Management is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate and a graduate degree within five years. Admission into the accelerated Five-Year B.S./M.S. program will be based on several factors, including past academic performance and considerations of overall aptitude and maturity. Students in the second semester of their junior year (or one semester before reaching senior standing) with a minimum 3.0 cumulative GPA, can apply for this program. Students accepted into this program should plan to complete specific first- year graduate courses during the senior year, and in the following summer term, with completion of all degree requirements in the following academic year. Students admitted to the five-year B.S./M.S. program may apply up to 6 graduate credits towards completing the B.S. degree.

COURSE DESCRIPTIONS

GENG 621 Reliability Engineering
3 credits
Reliability modeling, prediction, testing, physics to failure, and reliability design techniques are studied. Hardware and software systems. Identification of weak link for reliability improvement. Quality system reliability using advanced testing methods.

GENG 622 Risk Management
3 credits
Introduction to project risks management and engineering ethics for engineering decision making. Integrated models for technical, schedule, and cost risks. Management of cost-risk contributions. Identification and control of critical paths for the project schedule. Implementation of integrated risk management with computer simulation methods.

GENG 623 Decision Making Under Uncertainty
3 credits
Introduction of general techniques for dealing systematically with uncertainty in engineering decision problems. Computer simulation models, sensitivity analysis, and subjective probability assessment for engineering judgment. Probabilistic design criteria, the value of information, utility analysis with risk aversion, and trade-off under uncertainty are studied.

GENG 624 Project Management
3 credits
The course will cover the skills necessary to manage large and small projects in terms of planning and controlling techniques, coordinating and directing techniques, and negotiating techniques. Roles and responsibilities of the project manager and tools and techniques used in managing projects will be discussed along with preparing project records and reports.

All **GME** courses are listed under the Mechanical Engineering section of this catalog.

For all other engineering courses, please visit the appropriate departmental section of this catalog.

All **GMBA** courses are listed under the Business Administration section of the catalog.

Mechanical Engineering

Director: David Gee, Ph.D.

INTRODUCTION

The graduate program in Mechanical Engineering is designed to provide advanced studies for the graduate engineer who wishes to continue preparation for effective participation mechanical engineering profession. The program also provides continuing education in advanced subjects for the working engineer who acknowledges the need to stay abreast of the rapidly changing technological world. Emphasis is placed on the development of the engineer's capacity for independent study and continued professional growth.

DEGREE OFFERED

The program offers a Master of Science in Mechanical Engineering degree.

ADMISSION REQUIREMENTS

1. Applicants must have earned a Bachelor's degree in Mechanical Engineering from an ABET accredited program or its equivalent with a QPA of 2.5 or better.
2. Applicants without the appropriate Mechanical Engineering degree may be admitted and required to take additional course work as determined by the program director.
3. Applicants must submit the following:
   - Completed application
   - Transcripts for all prior college coursework
   - Three recommendation letters
   - TOEFL/other scores if English is not a first language.

CURRICULUM

The student will be assigned an initial academic advisor. The advisor and the student will select appropriate courses to satisfy the programs degree objectives and will obtain approval for the curriculum through the academic approval sequence. Within the first two academic semesters, students must take the following two courses:

GME 565 Computer Assisted Engineering
GENG 603 Engineering Analysis 1

NOTE: A student may replace GENG 603 Engineering Analysis 1 with another approved GME or GENG course by passing an exam conducted during the first week of class. The exam time will be announced at the first GENG 603 class.

After the student has completed 12 credits of study, the student will be assessed relative to their preparedness to begin thesis or project work. The candidate must maintain a 3.0 GPA to continue for the degree. The candidate must then choose one of the three project/thesis plans below for completion of their degree; an advisor will be assigned to guide the candidate for the completion of the degree work.

The advisor (thesis or project) will recommend a program of study and advise the student regarding the thesis/project subject, act as the academic advisor, and determine when to recommend the student for final examination, at which time this recommendation will be transmitted for approval through the academic approval sequence.

Plan A (Thesis)
The student will be required to submit a six-credit thesis as part of the 30 credits of graduate course work and pass a final oral examination on the thesis material and related subjects. The thesis work must be approved by the academic approval sequence prior to the commencement of the research work. The thesis advisor will direct the student's work and determine when to recommend the manuscript for review by a faculty committee. The review committee will be appointed by the usual academic approval sequence and will consist of three full-time Gannon Mechanical Engineering faculty members familiar with the subject material. In some cases, one committee member may be from outside the Mechanical Engineering Department. The advisor will be the chair of the review committee.

Plan B (Project)
The student will be required to complete a design project and to pass a final oral examination covering the student's project and related subject areas. The project will be worth three graduate credits as part of the 30 credits of graduate work. The project must be approved by the usual academic approval sequence prior to the commencement of the project work. The project advisor will direct the student's work and determine when to recommend the manuscript for review by a faculty committee. The review committee will be appointed by the usual academic approval sequence and will consist of three full-time Gannon Mechanical Engineering faculty members familiar with the subject material. In some cases, one committee member may be from outside of the Mechanical Engineering Department. The advisor will be the chair of the review committee.

Plan C (Project Course)
The student will be required to complete a three-credit course designated as a project course as part of the 30 credits of graduate work. The project course will be approved by the usual academic approval sequence prior to the commencement of the course and must include a significant project for its completion. The course instructor will inform the student of the complete requirements for the project course and be responsible for seeing that they satisfy these requirements.

Professional Track (Work-Study Program)

The objective of the professional track is to present an academic program combined with application training on actual industrial problems to give students a targeted education, complemented by hands-on, real-world development exposure. Students are selected for this track based on academic background, leadership skills, and communications skills. The student is assigned a Gannon professor as a mentor while working at the industrial site. The mentor advises the student on his academic work and guides the student on industrial engineering projects. The projects are carefully chosen to reinforce classroom work and to develop students into outstanding engineers. In addition to the mentorship in technical areas, the professor also mentors the student in leadership skills, work and personal ethics, and communication skills that are needed in the industrial workplace. The student is also assigned an engineering mentor from the industrial sponsor. This track requires that the student work on these projects half-time during the school year and full-time during the summer. The number of students in this track is dependent on the availability of industrial sponsorship.

Mechanical Engineering Curriculum with Professional Track

The curriculum and internship training for Mechanical Engineering with the professional track is as follows:

Fall First Semester
Engineering Analysis 1
Two Mechanical Engineering Graduate Courses
CPT

Spring Second Semester
Engineering Analysis 2
Three Mechanical Engineering Graduate Courses
CPT

Summer
Curricular Practical Training

Fall Third Semester
Three Mechanical Engineering Graduate Courses
CPT

Spring Fourth Semester
Two Mechanical Engineering Graduate Courses
One Free Elective with Advisor's Approval
CPT

Five-Year Accelerated B.S./M.S.
The Five-Year Bachelor of Science/Master of Science degree in Mechanical Engineering is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate and a graduate degree within five years. Admission into the accelerated Five-Year B.S./M.S. program will be based on several factors, including past academic performance, and considerations of overall aptitude and maturity. Students in the second semester of their junior year (or one semester before reaching senior standing) with a minimum 3.0 cumulative GPA are eligible to apply for this program. Students accepted into this program should plan to complete specific first-year graduate courses during the senior year, and in the following summer term, with completion of all degree requirements in the following academic year. Students admitted to the Five-Year B.S./M.S. program may apply up to 6 graduate credits towards completion of the B.S. degree.

Five-year Accelerated B.S. in Industrial and Robotics Engineering (IRE)/ M.S. in Mechanical Engineering (ME)
The five-year IRE Bachelor of Science/ME Master of Science degree is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate and a graduate degree. The programs may be completed in five years of full-time study (includes one summer). Students in the first semester of their sophomore year with a minimum 3.0 cumulative GPA can apply for this program. The students accepted into this program should plan to complete specific propaedeutic courses in Mechanical Engineering (12 credits) during their undergraduate period. 6 credits can be counted as Technical Electives for IRE. A set of Liberal Studies courses are required during the summer after their junior year. A set of first year graduate courses will be taken during the senior year. No more than 7 graduate credits are allowed prior to the completion of the B.S. degree.

Five-year Accelerated B.S. in Biomedical Engineering (BME)/ M.S. in Mechanical Engineering (ME)
The five-year BME Bachelor of Science/ME Master of Science degree is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate and a graduate degree. The programs may be completed in five years of full time study (includes one summer). Students in the first semester of their junior year with a minimum 3.0 cumulative GPA can apply for this program. The students accepted into this program should plan to complete specific propaedeutic courses in Mechanical Engineering during their second semester of junior year and a set of Liberal Studies courses during the summer after their junior year. A set of first year graduate courses will be taken during the senior year. No more than 7 graduate credits are allowed prior to the completion of the B.S. degree.

CO-OP Track

The objective of the CO-OP track is to present an academic program combined with application training on actual industrial problems in engineering environments. This is to give students a targeted education on real-world problems. Students may join this program after completing sufficient coursework to be successful in an industrial environment and receiving approved industrial sponsorship. International students participating in a CO-OP are required to contact the Office of Global Support and Student Engagement to apply for Curricular Practical Training before engaging in any CO-OP activity.

Students accepted to the CO-OP track are assigned a Gannon professor as a mentor and must take the Graduate Professional Experience (GENG 700-series) course each semester they are enrolled in the program.

Students must complete 30 credits of graduate course work in addition to their Graduate Professional Experience courses. Students must maintain a cumulative grade point average of at least 3.0 for the duration of their master's degree program and fulfill all other requirements for their degree.

COURSE DESCRIPTIONS

GENG 588 Modern Control Theory
3 credits
Linear spaces and operators, mathematical descriptions of systems. Linear dynamical systems and impulse response; matrices. Controllability and observability of linear dynamical systems. Irreducible realizations of rational transfer function matrices. Canonical forms, state feedback and state estimators. Stability of linear systems. Composite systems; linear optimal control and linear distributed systems.

GENG 589 Digital Control
3 credits
This course deals with the control of dynamic systems by employing classical and model control tools incorporating a digital computer in the control loop. It provides the background needed for those practicing engineers who have studied the concepts of continuous-time control to enhance their knowledge in the area of digital control system. Topics of discussion are z-transform, digital control system design, filters design, state-space approach to control system design, etc.

GENG 603 Engineering Analysis 1
3 credits
The theory and application to engineering problems of matrix-vector methods and Matlab software. Transition from discrete to distributed parameter systems with introduction to finite elements and partial differential equations.

GENG 609 Nonlinear Analysis
3 credits
Introduction to the understanding of nonlinear characteristics of mechanical and electrical components and systems. Basic analytical, graphical, and numerical methods are presented. Introduction to chaotic dynamics and nonlinear control.

GENG 621 Reliability Engineering
3 credits
Reliability modeling, prediction, testing, physics to failure, and reliability design techniques are studied. Hardware and software systems. Identification of weak link for reliability improvement. Quality system reliability using advanced testing methods.

GENG 622 Risk Management
3 credits
Introduction to project risks management and engineering ethics for engineering decision making. Integrated models for technical, schedule, and cost risks. Management of cost-risk contributions. Identification and control of critical paths for project schedule. Implementation of integrated risk management with computer simulation methods.

GENG 623 Decision Making under Uncertainty
3 credits
Introduction of general techniques for dealing systematically with uncertainty in engineering decision problems. Computer simulation models, sensitivity analysis, and subjective probability assessment for engineering judgment. Probabilistic design criteria, value of information, utility analysis with risk aversion, and trade-off under uncertainty are studied.

GENG 624 Project Management
3 credits
The course will cover the skills necessary to manage large and small projects in terms of planning and controlling techniques, coordinating and directing techniques, and negotiating techniques. Roles and responsibilities of the project manager and tools and techniques used in managing projects will be discussed along with preparing project records and reports.

GENG 685 Advanced Control Systems
3 credits
This course treats the analysis and design of linear control systems from the point of view of state space representation. Topics include system modeling, coordinate transformation, controllability, observability, output feedback, state feedback, linear quadratic regulators, and linear estimators. Additionally, an introduction to nonlinear control is presented with the topics of feedback linearization and adaptive control. Applications from interdisciplinary current state-of-of-the-art systems will be presented.

GENG 689 Stability Analysis of Multidimensional Dynamic System
3 credits
Fundamental concepts of stability for various classes of dynamic systems are examined and discussed. The systems considered include multidimensional lumped-parameter systems that can be described by linear differential equations. The systems under consideration are divided into certain well-defined classes, and various phenomena related to vibrations and stability of these systems are exposed systematically. Although the course examples are drawn from mechanical systems, the general nature of formulation can be applied to systems of similar nature in other disciplines, such as electrical circuits.

GENG 700-702 Graduate Professional Experience
1 credit
Prerequisite: Discipline-specific industrial sponsorship
This course complements regular academic education with hands-on, real-world development exposure. Students are required to be engaged in practical training during the course. International students require Curricular Practical Training (CPT) approval. Topics include issues facing engineering and computing professionals, trends in the fields, job prospects, team and workplace behavior, project leadership as well as reviews of speaking, listening, reading and writing skills.

GENG 703 Engineering Analysis 2
3 credits
Solving engineering problems using ordinary differential equations, partial differential equation, series solutions to differential equations. Complex analysis applied to engineering problems.

GENG 796 Directed Research Project
3 credits
Those students choosing their research project option will complete a directed research project. The topic will be approved by a three-member board consisting of the candidate's major professor, the department chairperson, and the Director of the Graduate Engineering Program. The student will perform the literature search, complete the project, and submit a final report.

GENG 797 Thesis
3-6 credits
Those students choosing the thesis option will have their topic approved by a three-member board consisting of the candidate's major professor, the department chairperson, and the Director of the Graduate Engineering Program. The student will perform the literature search, complete the thesis, and submit a final report. Under this option, students must complete a total of 6 Thesis credits.

GME 505 Finite Element Method 1
3 credits
Fundamentals of matrix algebra; basic approach to finite element analysis; definitions and basic concepts; system analysis fundamentals of elasticity; element formation by direct displacement method; element formulation by Galerkin Criterion (weight residuals method); finite element workshop using finite element program, such as ANSYS, for design and analysis of some structures.

GME 507 Optimization in Engineering
3 credits
Basic theory, concepts and methods of engineering optimization. Primary techniques from both classical and modern optimizations applied to engineering decision-making.

GME 510 Thermal Systems Design
3 credits
This course reviews the fundamentals of thermal systems design and optimization. Basic consideration in thermal systems design will be discussed. General approach to system analysis, modeling, simulation and optimization will be introduced. Various optimization techniques and methods will also be presented and discussed.

GME 511 Alternative Energy Systems
3 credits
Various alternative energy systems are introduced, their operation discussed and their performance evaluated.

GME 524 Turbomachinery Design
3 credits
Application of general principles of fluid mechanics to fluid machinery design. Design principles of centrifugal and axial compressors, degree of reaction estimates, blade design, state performance calculations, axial flow turbines. Design calculations of blade stress, disc stresses, and thermal stresses.

GME 525 Advanced Fluid Mechanics
3 credits
Velocity distributions in laminar and turbulent flow. Equations of state and interphase transports in isothermal systems. Compressible flow. Isentropic flow. Shock and expansion waves. Frictional effects. Flow with heat consideration. Numerical analysis.

GME 526 Advanced Thermodynamics
3 credits
Recapitulations of first and second laws of thermodynamics and their application to more generalized engineering systems. Chemical engineering thermodynamics; partial molar properties, chemical potential and its application to multiphase and multispecies systems. Statistical thermodynamics. Introduction to irreversible thermodynamics.

GME 527 Internal Combustion Engines
3 credits
This course introduces and reviews the fundamentals of internal combustion engines, including spark-ignition and compression-ignition engines. General engine systems and working cycles are described. Engine thermodynamics, gas exchange and combustion processes, engine fluid flow and heat transfer, and fuel injection systems are analyzed. The course also reviews the formation of engine exhaust emissions and methods for controlling the emissions of the internal combustion engines. Engine design and consideration of the effects of design and operating factors are introduced.

GME 528 Heat Exchanger Design
3 credits
Application of general principles of heat transfer in design of heat exchanges. Different types of heat exchangers will be studied in design-oriented projects.

GME 530 Advanced Strength of Materials
3 credits
Special topics on the strength and stiffness of members subjected to static loads; beams on elastic foundations; thin plates and shell contact stress; curved flexural members, energy methods; instability-buckling loads; plasticity; ultimate load analysis.

GME 535 Elastomer Design
3 credits
This course is designed to introduce students to the important field of polymer science with a focus on thermoplastics and elastomers. The course will be focused on the fundamentals of elastomer selection, mechanical properties of elastomers, and design of elastomeric components including hyperelastic modeling.

GME 555 Computer Aided Manufacturing
3 credits
Introduction of basic concepts of automation in manufacturing with principles of NC systems and computer-managed manufacturing.

GME 563 Machine Dynamics
3 credits
Introduction to basic machine dynamics. Analysis of forces in translating rotating and reciprocating systems. Flywheel analysis, regulators, balancing, gyroscopic forces in machines.

GME 564 Thermal Environmental Design
3 credits
The relevant principles of engineering thermodynamics, heat transfer and fluid mechanics will be reviewed. Refrigeration and cryogenics will be covered. Thermodynamic properties of moist air will be reviewed along with various applications in heating, ventilating and air conditioning. Human thermal comfort and indoor air quality will be covered and various methods of heating and cooling load calculations for buildings will be presented.

GME 565 Computer Assisted Engineering
3 credits
Topics include the application of Matlab software to multi component mechanical and thermal/fluid system design, analysis and synthesis, static and transient systems. Mathematical techniques include nonlinear equation solution, nondimensional analysis, lumped vs. distributed models, optimization and design sensitivity analysis, probability and statistics, and Monte Carlo simulation. Examples are taken from industrial mechanical engineering problems of current interest.

GME 567 Lubrication System Design
3 credits
Analytical and experimental results in lubrications of journal bearings and utilization of this information in design projects.

GME 583 Polymer Engineering
3 credits
Prerequisite: Background in general chemistry and material science as undergraduate
This course is designed to introduce graduate engineering students to the important field of polymer science. The course will be focused on the fundamentals of polymer science. Since polymers are ubiquitous in modern society, a background in this subject is essential for engineers who wish to pursue careers in industry.

GME 589 Nanotechnology for Engineers
3 credits
Prerequisite: Background in general chemistry and material science as undergraduate
This course is designed to introduce graduate engineering students to the important field of nanotechnology. The course will be focused on the fundamentals of nanomaterials (i.e. synthesis, characterization, properties and applications). Since nanotechnology is a field with incredible promise to change the future of society in almost every facet, a background in this subject is essential for engineers who wish to pursue careers in industry.

GME 590-599 Special Topics in Engineering
3 credits
Special courses developed from study interest in all areas of Engineering. Brief description of current content to be announced in schedule of classes.

GME 605 Finite Element Method 2
3 credits
Prerequisite: GME 505 or equivalent course/experience
Variational methods of element formulation (virtual work, potential energy, complementary energy, discretion, and hybrid approach); variational principles in global analysis, representation of element behavior functions and geometry (requirements, polynomials, shape functions different elements including higher order elements); finite element programming ideas and simple routings.

GME 612 Distributed Parameter Systems
3 credits
Modeling and analysis of bounded engineering systems distributed over space and time. Application of partial differential equation models and transition to infinite dimension representations. Analytical exact and approximate solutions are combined with numerical results. Examples are taken from areas of current interest in the fields of acoustics, mechanics, structural dynamics, heat transfer, fluid flow, kinematic waves, and nano systems.

GME 615 Acoustics and Noise Control
3 credits
Introduction to acoustics with a focus on noise control. The course provides the fundamentals of noise radiation, transmission, measurement, and control. Additionally, the course covers the fundamental principles and application of noise control materials and systems. Examples from actual noise control problems will be used throughout the course.

GME 625 Convection Heat Transfer
3 credits
Review of equations of change, equations of state, and constitutive and governing equations; forced convection heat transfer in laminar internal flows; forced convection heat transfer in turbulent internal flows; forced convection heat transfer in turbulent external flows; condensation; boiling.

GME 628: Fundamentals and Applications of Combustion
3 credits
This course studies the fundamentals of combustion and their applications to combustion systems such as combustion engines. Review of fundamentals of combustion thermochemistry and chemical kinetics, mass transfer and reacting flow, laminar premixed and diffusion flames, droplet burning, turbulent premixed and non-premixed flames, detonations, and formation of combustion emissions. The combustion engines analyzed for combustion and emissions formation and control include general internal combustion and gas turbine engines.

GME 629 Continuum Mechanics
3 credits
Study of continuum media. Tensor analysis, kinematics of deformation, elastic response, isotropic and anisotropic elasticity, finite deformations, viscoelasticity.

GME 630 Computational Fluid Dynamics
3 credits
This is an introductory course in computational fluid dynamics (CFD). The course reviews the fundamental conservation principles and governing equations of fluid mechanics. Numerical methods and computational techniques and skills required for analyzing and solving the fluid mechanics governing equations are introduced. Application of the methods to practical fluid dynamics problems is presented and discussed. Available CFD application codes are also introduced. In addition, the fundamentals of computational heat transfer are presented.

GME 635 Structural Dynamics
3 credits
Dynamics of structures including beams, plates, and mixed systems of beams, plates, and lumped masses/springs. Energy methods. Exact and approximate solutions for system natural frequencies and mode shapes. Effect of damping. Response to applied forces.

GME 641 Elasticity
3 credits
Equations of linear elasticity; techniques for solution: Airy's stress function; polar coordinates; numerical methods; thermal stress.

GME 643 Plasticity
3 credits
Plasticity as applied to engineering. Stress-strain relation both in elastic and plastic medium. Yielding, deformation energy and creep. Limit analysis and its application in design.

GME 645 Plates and Shells
3 credits
Properties, theory, and method of analysis of plates and shells. Problems related to rectangular, circular and annular plates, buckling; energy methods, thin shells, dynamic analysis vibration.

GME 646 Advanced Machine Design
3 credits
A design-project based course. This course enhances student's machine design experience. The course demonstrates to the student how knowledge from other engineering disciplines can be integrated in the accomplishment of a design objective. At the same time, the student will get acquainted with design methodology and developing the design strategy.

GME 648 Modeling and Simulation of Dynamic Systems
3 credits
This course presents mathematical modeling methods for multi-physics physical systems containing mechanical, electrical, thermal-fluid, actuators, and control components. Included are the application of physical principles, energy approaches, non-dimensional techniques, and discretization of continuous systems. Numerical simulation of linear and nonlinear models will be studied and compared to experimental results.

GME 650 Robotics
3 credits
Introduction of basic concepts and robotic systems with principles of kinematics, dynamics control and economics, to familiarize the student with the basics and industrial applications.

GME 655 Advanced Dynamic Systems
3 credits
Energy considerations and development of Lagrange's method for multi-element dynamic systems. Applications for deriving system differential equations. Dynamics of electromechanical and electro-hydraulic systems. Examples of current interest will be studied.

GME 657 Active Suspension Systems
3 credits
Modeling and analysis of suspension systems for ground vehicles and aircraft. Response to various types of inputs. Applications of control theory. Analysis and design of active and semi-active components and systems.

GME 661 Advanced Mechanical Vibrations
3 credits
Advanced topics related to vibration of multi-dimensional and continuous parameter systems are examined and discussed. The course includes vibration analysis of various types of continuous parameter homogeneous and forced systems. It further includes methods of converting continuous parameter systems to discrete multi-dimensional systems. Additionally, concepts of vibration design including active suppression are investigated. Finally, vibration testing methods are discussed.

GME 670 Mechanics of Composites
3 credits
An introduction to the mechanics composite materials, specifically fiber-reinforced plastics (FRP). The course will focus on the macroscopic properties of laminated structures formed from FRP, including strength, stiffness, thermal and hygrothermal properties, and theories of failure. The course will present the classical lamination theory, with extensions to the theory as time permits.

GME 680 Design of Experiments
3 credits
Review of Visual Basic and MINITAB; application of Monte Carlo software for Six Sigma Design: simple comparative experiments; experiments with single factor; the analysis of variance; randomized blocks, Latin squares, and related designs; factorial design; two and higher level fractional factorial designs.

GME 690-699 Special Topics in Engineering
3 credits
Special courses developed from study interest in all areas of Engineering. Brief description of current content to be announced in schedule of classes. Open to graduate students only.

Environmental Science and Engineering (ESE)

Program Director: Hwidong Kim, Ph.D., PE

Master of Science in Environmental Science and Management

The program in Environmental Science and Management is diverse and dynamic, focusing on challenges in both the outdoor and built environment. The Department of Environmental Science and Engineering draws upon established relationships with local industries and environmental agencies making Gannon University a regional leader in environmental quality, environmental health, and environmental management.

Two options are offered within the M.S. program: 1.) Environmental Health and Safety and 2.) Environmental Management. Graduates of the Environmental Health and Safety option have the ability to develop and implement technologies to improve and protect both environmental and human health. Many graduates are employed in areas of environmental compliance in the industry, consulting firms or the government. Students whose career plans are management and administrative in nature may pursue the Environmental Management option. This option combines environmental science courses with business courses in order to prepare students for environmental leadership roles.

PROGRAM OBJECTIVES AND LEARNING OUTCOMES

The department has developed the following learning outcomes and an assessment process, to provide feedback for continuous improvement in the program. Graduates of the Environmental Science and Management program should demonstrate:

1. knowledge of environmental health, science, and engineering fundamentals relevant to the areas of air, water, land, and soil;
2. capability to design an environmental research study, collect and analyze data, and communicate the results;
3. understanding of environmental regulations and the roles of public and private organizations in environmental regulatory compliance;
4. the ability to communicate effectively and function as a member on multi-disciplinary teams;
5. knowledge of contemporary environmental issues on a local and global scale; and
6. contributions, such as service, to the profession and/or community.

EMPLOYMENT OUTLOOK

The application of environmental science is felt in essentially every walk of life, including agriculture, manufacturing, mining, water/wastewater treatment, land reclamation, and recreation. Opportunities for employment include not only government and non-profit agencies but private corporations need professionals to manage their in-house programs.

ADMISSIONS CRITERIA

Students should have a Bachelor's degree in science or engineering from an accredited college or university, with courses in math, biology (preferably including ecology and microbiology), chemistry, physics, and earth sciences. If an applicant's undergraduate science and math preparation are not adequate, appropriate undergraduate courses may be required in addition to the graduate program. If the applicant's undergraduate grade point average is less than 3.0 (4 point scale), the Graduate Record Exam (GRE) is required as part of the application package.

MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE AND MANAGEMENT CURRICULUM

A minimum of 30 credits are required for the M.S. degree; number of credits per course is indicated. The student and advisor determine each student's program to meet the student's individual career needs.

Requirements for the
Option in Environmental Health and Safety

GENV 500	Environmental Research Methods	3
GENV 503	Principles of Environmental Science and Engineering	3
GENV 542	Environmental Toxicology	3
GENV 544	Environmental Law and Regulations	3
GENV 694	Thesis	6
or		
GENV 695	Research Paper or Project	3

Additional electives approved by the program director to satisfy the program requirements of 30 credits.

Option in Environmental Management

The role of the environmental manager has evolved rapidly since the enactment of sweeping environmental legislation of the early 1970s and the need for environmental professionals continues to this day. Proper environmental stewardship can lead to greater competitiveness and profitability and is required under numerous federal regulations. The need for individuals who understand business and management principles, and who also have a thorough understanding of environmental science and technology is in high demand.

Objectives

- an understanding of current concepts in the science and technology of pollution management and the remediation of contaminated sites, and of the role of pollution prevention and minimization in the manufacturing and service sectors;
- knowledge of the health effects of pollution, and the strategies employed to promote a safe and healthy workplace;
- an understanding of business and management issues and strategies;
- the ability to apply scientific methods to define problems, gather relevant information and analyze research results.

Requirements for the option in Environmental Management
(30 credits)

Environmental Science Courses (18 credits)

GENV 503	Principles of Environmental Science and Engineering	
GENV 542	Environmental Toxicology	
GENV 544	Environmental Law and Regulations	
GENV 540/549	Industrial Health I or Industrial Safety	
GENV 695	Research Paper or Project	
GENV	Elective	3 credits

Management Courses (12 credits)

GMBA 615	Technological Environment of Business
GMBA 625	Data Driven Strategic Planning and Decision-Making
GMBA 635	Financial Management and Modeling
GMBA 645	Strategic Global Marketing and Analytics
GMBA 655	Socially Responsible Leadership
GMBA 665	Operations and Supply Chain Analytics
GMBA 675	Managing Organizational Behavior and Dynamics
GMBA 685	Organizational Communication and Data Visualization
GMBA 695	Entrepreneurship in a Technological Environment

Five-Year Accelerated B.S./M.S.

The Five-Year Program offered through the department is designed to allow environmental engineering and environmental science majors to graduate with both a B.S. and M.S. degree in five years. Eligibility for the program is competitive and admission is based on overall academic performance and scientific/math aptitude. Students must apply for the combined B.S/M.S. program during their junior year. In addition to the B.S. requirements, students complete six credits at the graduate level during their senior year. In order to receive graduate credit for courses taken during the fourth year, students must have applied and been accepted into the B.S./M.S. program.

COURSE DESCRIPTIONS

Senior undergraduate students may be admitted to 500-level courses only if formally enrolled in the Combined 5 Year BS/MS program.

GENV 500 Environmental Research Methods
3 credits
Students will become familiar with the scientific method and the scientific literature, and will be prepared to plan a scientific research study, including a statement of experimental goals, a review of the scientific literature, and a presentation of methods. Offered: Fall Semester

GENV 503 Principles of Environmental Science and Engineering
3 credits
Prerequisites: graduate standing
This course applies the principles of science and engineering to environmental systems and pollution management. Specifically covered will be chemical kinetics, mass balance models, reactor models, mass transfer, biological principles governing ecosystems, water and wastewater treatment, air pollution control, and solid and hazardous waste management. Offered: Spring semester

GENV 517 Limnology of the Great Lakes with Lab
4 credits
Prerequisite: a course in Hydrology is preferred but not required
A study of the physical, chemical and biological aspects of the Great Lakes. Advanced limnological concepts will be incorporated into understanding the past, present and future condition of the Lakes. Field and laboratory experiences will include the analysis of Lake Erie water samples for chemical, biological and physical interpretation using standard procedures. Field experiences will include trips on the R/V Environaut, Gannon's research vessel. Offered: Varies

GENV 520 Environmental Site Assessment
2 credits
This course covers the background and techniques required of an environmental professional in performing Phase I and Phase II environmental site assessments. These assessments are commonly required when there is a transfer of ownership of commercial or industrial property. Topics include site characterization, fate and transport, and application of the three attainment standards associated with Act II, Pennsylvania Land Recycling Program. Hands-on field experience included in the course activities. Offered: Varies

GENV 522 Wetlands Science and Engineering
2 credits
Wetlands Science and Engineering is a comprehensive course in wetland identification, function and value assessments, and management. The course will cover the fundamentals of identifying and delineating jurisdictional wetlands utilizing the current methods described in the 1987 US Army Corps of Engineers Manual. Comparative reference will be made to the 1989 EPA Joint Manual. Wetland design and construction methods will be presented as applicable to water quality enhancement, wildlife habitat improvement, storm water management, and riparian environments. Offered: Fall

GENV 535 Water Quality Modeling
4 credits
Pre/Corequisites: (ENV 403 or GENV 536) and GENV 503, or permission of the Instructor.
An overview of fundamental processes and models developed to simulate and predict changes in water quality in natural settings. This course will be restricted to freshwater surface waters, particularly streams and rivers, but there will be some discussion of lakes and reservoirs. Students will become familiar with USEPA's BASINS (a GIS software for the presentation and analysis of water quality data) and the models associated with it.

GENV 536 Environmental Chemistry
3 credits
Prerequisite: two semesters of undergraduate chemistry
This course will cover various chemistry topics that are applicable to environmental science. Emphasis is placed upon principles of water chemistry and quantitative chemical analysis. Course will discuss basic principles of thermodynamics, adsorption isotherm, chemical equilibrium, redox, organic water pollutants and various analytical instruments such as atomic absorption spectroscopy and chromatography. Offered: Fall semester

GENV 537 Environmental Chemistry Lab
1 credit
Pre/Corequisite: GENV 536
Laboratory to accompany Environmental Chemistry. Lab exercises in applied, environmental aspects of physical, organic, and inorganic chemistry, including instrumental analysis. Offered: Fall semester

GENV 540 Industrial Health I
3 credits
Prerequisite: GENV 542
This course will review the basic principles and knowledge required to recognize, evaluate and control hazardous agents within the workplace environment. The topics to be covered include: an overview of occupational health and safety regulations, workplace exposure limits and standards, air sampling principles and techniques, chemical hazard identification and control, ventilation and biohazards. Offered: Spring semester

GENV 541 Industrial Health II
3 credits
This is the second part of a two-semester course that covers the basic principles and knowledge required to recognize, evaluate and control hazardous agents within the workplace. Topics covered include: ergonomics, radiation hazards, heat stress, noise and noise control, respiratory protection, risk assessment, and health and safety programs. Offered: Varies

GENV 542 Environmental Toxicology
3 credits
Prerequisites: Organic Chemistry
This course provides an overview of the theory, basic concepts and application of environmental toxicology. A public health approach is used in applying these concepts to protect human health. Topics

covered include: dose-response relationships, toxicokinetics, biotransformation and elimination of toxicants, target organ toxicity, carcinogenesis, risk assessment and the standard-setting process. Offered: Fall Semester

GENV 544 Environmental Law and Regulations
3 credits
The course introduces students to the major concepts of environmental law. Because environmental law is grounded in both federal and state statutes, the course will expose students to major components of statutory law at both levels, and will also explore the federal/state relationship using Pennsylvania as a model. Although a basic understanding of the American legal system and administrative law would be of great benefit, it is not a prerequisite to the course. Offered: Spring semester

GENV 546 Industrial Hygiene Sampling Techniques
2 credits
Pre/Co-requisite: GENV 540
Develop an understanding of practices and procedures of environmental/occupational sampling and interpretation of collected data. Emphasis is applied to air sampling techniques and methods, and industrial hygiene sampling. Offered: Varies

GENV 547 Epidemiology
3 credits
This course will review the basic principles related to the design and implementation of epidemiologic studies. The topics to be covered include: application of epidemiologic studies, study designs, statistical issues, exposure and health outcome measurements, measurement error and data interpretation. Examples and applications are specific to occupational and environmental epidemiology. Offered: Varies

GENV 549 Industrial Safety
3 credits
This course provides students with an introduction to the major facets of effective safety and health management programs and the associated regulatory environments, using both OSHA and ISO (international) guidelines. The course offers practical approaches to managing risk to people and property, with a focus on industrial workplaces. Students will develop technical skills by studying ergonomic, equipment design, machine guarding, chemical safety and fire suppression principles. Students will also be exposed to basic project management principles and will be afforded opportunities to enhance their critical thinking and communication skills via industrial safety case studies and project planning exercises. Offered: Varies

GENV 551 Water and Wastewater Treatment Design Engineering
3 credits
Prerequisites: ENV 403 or GENV 503; Co-requisite: GENV 553
The course covers the fundamental processes and operations commonly used at typical drinking water treatment plants and municipal wastewater treatment plants. The student will learn how to specify the sequence of operations and size the important elements in treatment plant operations. Offered: Fall semester

GENV 553 Water-Wastewater Treatment Lab
1 credit
Co/Prerequisite: GENV 551
This course will support GENV 551, Water/Wastewater Treatment Engineering, by providing laboratory experiences which complement the principles and engineering practices presented in the lecture sessions. Topics covered will include those operations typically found at water and wastewater treatment plants, and used by consulting engineers to conduct bench-scale and pilot-scale studies for treatment plants. (3 hour lab). Offered: Fall semester

GENV 555 Air Pollution Control Engineering
3 credits
Prerequisites: ENV 403 or GENV 503
This course focuses on the technology and methodologies used to reduce concentration levels of pollutants being released to the atmosphere. The statutes, regulations, and permitting protocol will be introduced since they constitute an important requirement for obtaining legal authority to build a facility that will emit pollutants to the atmosphere. Integrated knowledge of fluid mechanics, thermodynamics, chemistry, and mathematics, will be applied. Topics covered will include the nature and dynamic behavior of particulate matters, collection methods and analytical techniques, air pollution control/reduction methods, treatment technologies and air pollution control devices, and control of NOx, SOx, and volatile organic compounds (VOCs). Offered: Spring Semester

GENV 565 Soil and Groundwater Pollution
3 credits
Prerequisites: ENV 403 or GENV 503
Soil serves as a multifunctional and crucial natural system for the reception, storage, and transport of water and pollutants to aquifer media. In this course, a fundamental understanding of physics, geology and hydrogeology, and chemistry, along with engineering principles, will be used to understand the dynamic nature of fluid flow and contaminant fate and transport in porous media. Topics covered include the hydrologic cycle, sources and types of contaminants, remediation technologies, and well hydraulics theory and field examples. Offered: Spring semester

GENV 574 Environmental Microbiology
2 credits
Prerequisite: a college course in microbiology;
Co-requisite: GENV 578
The course will cover the applied effects of microorganisms on both the environment and human health/activities. The topics to be covered during this course include: biogeochemical cycling; municipal water and wastewater treatment; bioremediation; detection and quantification techniques; and the control of human pathogens. Offered: Varies

GENV 577 Solid and Hazardous Waste Management
3 credits
Prerequisites: GENV 536 and permission of the instructor
The objective of this course is to apply multidisciplinary approaches to managing solid and hazardous wastes. Topics include familiarization with sources, classification, storage, transportation, various physicochemical and biological remediation technologies, and pertinent federal and state regulations. Knowledge of physicochemical and/or biological characteristics of a waste will be used to design appropriate disposal options. Offered: Varies

GENV 578 Environmental Microbiology Laboratory
2 credits
Pre/Corequisite: GENV 574
This lab accompanies GENV 574 and includes field and lab work which aid in understanding environmental microbiological principles. Offered: Varies

600 level courses (for graduate students only)

GENV 645 Human Health Risk Assessment
3 credits
This course will cover the principles and application of risk assessment to determine the risk of human health effects from environmental hazards. Methods for evaluating potential environmental exposures will be examined coupled with the principles and concepts of toxicology as covered in GENV 542. Specific topics to be covered include the application of various risk assessment paradigms; the EPA risk assessment guidelines; and the use of risk assessment in environmental/occupational standard setting. Offered: Varies

GENV 656 Air Quality Modeling and Measurement
3 credits
Prerequisites: GENV 503
This course covers the basic concepts and theory for air quality modeling and measurement of point, line and area emission sources along with considerations of micro-meteorological and transport mechanisms. The use of computer simulation models for pollution impact prediction and model calibration and validation procedures will be covered. Offered: Varies

GENV 680 Graduate Environmental Internship
1-4 credits

GENV 692-693 Special Topics
1-3 credits

GENV 694 Graduate Thesis
6-9 credits

GENV 695 Research Paper or Project
3 credits

Healthcare Administration

Director: Rick Stachel, D.Sc.

INTRODUCTION

Healthcare facilities are increasingly complex to manage due to many factors: increased governmental regulation, demand for accountability, advances in healthcare technology, the changing demographics of the country, and the variety of reimbursement systems. There is a pressing need for qualified healthcare administrators to plan, organize, direct, and control their organization's resources.

The Master of Healthcare Administration (MHA) degree is designed to meet this need through an executive choice format. Students can complete the program entirely online, online with the option of joining any number of weekly enrichment sessions through web/video conferencing, or entirely face-to-face. Students who choose the face-to-face option will be able to interact weekly with the online cohort who attend via web/video conferencing for the optional enrichment sessions.

Regardless of modality, all courses in the program are 7-weeks long. Graduate students typically take two courses per semester. Given the dynamic curriculum and flexible modalities, the MHA program is ideal for working professionals who wish to continue to work while pursuing their education to advance or change their careers. The program consists of 36 credits over 12 courses and students can begin the program in the fall, spring or summer semesters. The Gannon MHA Program may be pursued on either a full-time or part-time basis. The Program is housed in the College of Engineering and Business and carries the STEM designation.

MISSION AND OUTCOMES OF THE MHA PROGRAM

The Master of Healthcare Administration (MHA) degree is designed for career-oriented individuals who want to help shape the direction of healthcare organizations. Students should bring both a business mind and a commitment to take care of the enterprise, its patients, families, and its employees. Our students will be provided with the education, tools, and resources to help them gain employment in the full continuum of healthcare including hospitals, physician practices, long-term care settings, and public health, research, and consultant organizations.

At the completion of the program students will:
1. Demonstrate knowledge of the skills, terminology and professional conduct necessary to align with positions into which the students enter.

2. Understand, demonstrate and speak to the essential elements in the development, understanding and execution of the mission of a healthcare organization.
3. Be able to effectively communicate to both healthcare professional and nonprofessional audiences.
4. Be able to raise vital questions and formulate them clearly; gather and assess relevant information using abstract ideas and think critically. They will be able to justify their answers and analyze their information in terms of clarity, accuracy, relevance, logic and fairness.
5. Demonstrate professional ethics and competences.

VISION STATEMENT

The Master of Healthcare Administration at Gannon University will be recognized for its:

- Outstanding faculty who are recognized leaders in the field of healthcare administration and innovative educators
- Exceptional, highly motivated students who excel through active and collaborative learning
- Service to the local and global community through projects, research, and internships
- Committed program stakeholders (students, staff, faculty, and the organizations and people we engage) who shape the healthcare future
- Expertise to facilitate continuous improvements in healthcare delivery systems.

ADMISSION REQUIREMENTS

For all students:
Candidates for the Master's program will be considered for enrollment on a rolling basis. Students will be notified of the admissions decision after review from the Office of Graduate Admissions and the MHA Program Director. Applicants are asked to meet the following admissions criteria:

- Undergraduate degree (or expected completion of an undergraduate degree prior to enrollment)
- Minimum 3.00 overall GPA
- If your undergraduate GPA is less than a 3.0 on a 4.0 scale, there are two options:
  - Take the GMAT and achieve a score of 1050 using the formula: 200 x (undergraduate GPA) + GMAT score.
  - GMAT requirement may be waived based on professional experience following the Program Director's review of application

Applicants are asked to submit the following information to the Gannon University Office of Graduate Admissions:

- Completed graduate application (online)
- Official academic transcripts from all prior institutions
- Professional resume

Non-Degree Status is offered to students who, after admissions review, show academic promise and are seeking professional development. A maximum of 9 credits may be taken as a non-degree student.

4+1 MASTER OF HEALTHCARE ADMINISTRATION (MHA) PROGRAM

The 4+1 MHA program is designed to allow undergraduate students (from many disciplines) the opportunity to earn both an undergraduate degree and MHA in five years. Students from any major may apply and should do so before they begin their junior year. Working with both the undergraduate advisor and the MHA Program Director, the student will customize a schedule in which they will take graduate courses during their junior or senior years. Students who successfully complete these courses may apply to continue into the MHA program to complete the remaining credits. Applicants to the program must have a 3.0 undergraduate GPA. Retention in the program requires that the student maintain a minimum of a 3.0 GPA for their undergraduate studies.

CURRICULUM

The Gannon MHA is a professional degree program. MHA students are generally working professionals who balance their studies with their careers. Instruction is offered face-to-face or completely online; but fully online students have the opportunity to join faculty-hosted (optional) enrichment sessions once a week for each course. The flexibility in program modality options allows students to continue working while completing their degree on a full-time or part-time basis (within one to two years, respectively).

REQUIRED COURSEWORK

GMHA 601	Introduction to Health Systems Organizations and Management
GMHA 603	Healthcare Services Marketing
GMHA 605	Quality Management in Health Care Services
GMHA 606	Healthcare Information Systems and Technology
GMHA 609	Comparative Healthcare Economics
GMHA 610	Healthcare Management and Leadership
GMHA 611	Healthcare Research and Quantitative Methods
GMHA 625	Healthcare Law and Ethics
GMHA 661	Healthcare Finance
GMBA 641	Operations and Supply Chain Management
GMBA 736	Human Resource Management
GMHA 799	Strategic Management

Total credits: 36

Courses may be waived on a course-by-course basis based upon academic and employment background at the discretion of the Director. However, 36 hours of course work, including required courses and substitute electives, are required for program completion.

COURSE DESCRIPTIONS

GMHA 601 Introduction to Health Systems Organizations and Management
3 credits
Prerequisites: None
This course introduces students to the management of healthcare organizations. It includes an examination of the environments in which the organizations operate, including the following: the types of organizations in the care continuum, types and categorizations of practitioners and clinicians, and the role of insurers, policymakers and regulators. The course also introduces students to the topic of underserved and vulnerable populations as well as innovation in the healthcare industry. The course also describes how healthcare services are financed in various delivery models including: The Beveridge Model, The Bismarck Model, The National Health Insurance Model and the Out-of-Pocket Model.

GMHA 603 Healthcare Services Marketing
3 credits
Prerequisites: GMHA 601
This course provides students with a thorough understanding of the principles and concepts of health care marketing. Essential elements of marketing are discussed in detail to assist students in applying this knowledge in today's dynamic healthcare environment.

GMHA 605 Quality Management in Healthcare Services
3 credits
Prerequisites: GMHA 601 and Statistics
This course focuses on strategies to measure and improve healthcare efficiency, effectiveness, patient satisfaction, and quality. It considers various quality standards and protocols, preparing the health administrator to gather, assess, and act on data from a variety of sources. It addresses the role of getting stakeholders engaged to develop a safety culture and to achieve organizational goals that drive recognition, patient safety, and reimbursement.

GMHA 606 Healthcare Information Systems and Technology
3 credits
Prerequisites: GMHA 601
This survey and analysis of healthcare information systems planning and leadership prepares health administrators to communicate productively with information technology and clinical professionals. The course explores the challenges of selecting and implementing information systems to achieve organizational mission. The course focuses on how and from whom health administrators should gather information and judge its veracity. It also considers other organizational data and issues that go into selection decisions and implementation plans. Attention will be given to various stakeholders and how to manage their impact on IT projects.

GMHA 609 Comparative Healthcare Economics
3 credits
Prerequisites: GMHA 601
This course introduces the economic foundations of healthcare based on traditional economic analysis, such as: production functions, marginal analysis, supply and demand analysis, cost benefit analysis market efficiencies, utility, buyer behavior and the influence of government policies. This course also investigates, analyzes and compares the economic effects of the four types of healthcare-payer models in use around the word: The Beveridge Model, The Bismarck Model, The National Health Insurance Model and the Out-of-Pocket Model.

GMHA 610 Healthcare Management and Leadership
3 credits
Prerequisites: GMHA 601
This course examines leadership concepts as they apply specifically in healthcare organizations. Topics such as managing change, intra-organizational communication, and high-level decision making are included. The course focuses on building skills to sort through and make sense of the plethora of information available in making judgment calls. Focusing on leadership, the course goes well beyond management, helping students recognize, building on and enhancing their skills and increase their adaptability. This course also stresses the importance of identification, empathy, and communication with relevant stakeholders.

GMHA 611 Healthcare Research and Quantitative Methods
3 credits
Prerequisites: GMHA 601 and Statistics
This course focuses on the value of various research methods and resulting data for running an efficient and effective organization. The course focuses on the development of skills to assemble and analyze research information. The course acknowledges that most health administrators will not be designing and running research projects but that they must be able to communicate with researchers in a variety of disciplines. They must be able to recognize quality research protocols and select findings that can complement data from other disciplines in leadership decision making.

GMHA 625 Healthcare Law and Ethics
3 credits
Prerequisites: GMHA 601
This course examines the roles and legal rights of patients, administrators, governing boards, state and federal government, third-party payers, and healthcare providers. It focuses on providing healthcare administrator the knowledge of how and when to communicate with legal experts and how to use appropriate legal precepts. This course provides an introduction to the concept of ethics in healthcare settings. The course also provides a historical perspective on the development of healthcare ethics, the role of the ethics professionals, the principles of health care ethics and the connection between ethics, and quality improvement in various healthcare settings. Special topics include liability, risk management,

patient-provider relationships, fraud and abuse, antitrust, and health legislation. This course will also examine selected business law topics including agency and partnership, business corporations, and joint ventures.

GMHA 661 Healthcare Finance
3 credits
Prerequisites: GMHA 601 and Accounting or Finance
This course explores financial theory and its practical application in healthcare across a full application in healthcare across a full range of facilities, from hospitals and home health agencies to skilled nursing facilities, surgical centers, and private physician practices.

GMBA 641 Operations and Supply Chain Management
3 credits
Prerequisite: GMHA 601 and Statistics
The course is designed to introduce students to the principles of operations and supply chain management and their application in decision making. The topics covered include logistics, transportation, inventory management, warehousing, materials management, global supply, demand management, project management, e-commerce, finance, and network design.

GMBA 736 Human Resource Management
3 credits
Prerequisites: GMHA 601
The knowledge, skills, and abilities of the workers in a firm are its most valuable resource. This course helps students recognize the strategic importance of human resource management. The student will explore contemporary techniques of resource analysis, testing, recruiting, selection, training, appraisal, and compensation planning, and will integrate these techniques with the strategic focus of the firm.

GMHA 799 Healthcare Strategic Management
3 credits
Prerequisites: Completion of all 600 level MHA courses
This last course in the Gannon MHA program consolidates learning from every other course in a real-life strategic analysis of a healthcare organization in transition. The course focuses on the main processes in planning and delivering health care to the community, such as needs assessment, feasibility studies, strategic marketing design, and implementation and evaluation strategies and methods. This course is an application exercise; simulating activities healthcare administrators engage in daily, pulling information from various sources and packaging it for effective decision making. The course is intended to be a practical, interesting, exciting, and informative culmination for the MHA program.

Healthcare Business Analytics Certificate – Online

Director: Rick Stachel, D.Sc., MBA

INTRODUCTION

The Healthcare Business Analytics certificate provides the essential capabilities necessary for individuals who want to establish themselves as recognized professionals with expertise in the collection, analysis and reporting of business data in a healthcare environment. The program is designed for working healthcare professionals or individuals who may have experience in business analytics but want to build upon their strengths to transition into healthcare. The certificate develops competencies in healthcare data analytics by exposing students to the tools and models encountered in various analytics disciplines in healthcare organizations and is taught by experts in their respective fields.

Because the credits associated with the certificate are part of the Master of Healthcare Administration (MHA) program, students can use the certificate as a steppingstone to completion of the MHA. The certificate, which is composed of four courses, is delivered online and is designed to be completed in one academic year. Students will begin in the fall, and they will complete the coursework in 7-week increments, concluding the program in the spring of the following calendar year. The certificate outcomes have been aligned with the Certified Associate in Healthcare Information and Management Systems (CAHiMS) certification offered through the Healthcare Information and Management Systems Society (HiMSS), and after completion of the certificate program, students will be prepared to sit for the CAHiMS certification exam.

CERTIFICATE OUTCOMES

After completing the certificate, the participants will be able to:

1. Demonstrate an understanding of the history, utilization, influences and challenges of technology within healthcare organizations and use that to recommend technology solutions that delivery data-driven improvements.
2. Obtain an understanding of data management and various analytical methods and models designed to answer critical healthcare business questions to deliver quality care to patients.
3. Experiment with the analytical functions of Electronic Health Record (EHR) systems and determine the significance of data analysis outputs in delivering value to patient care and business performance.
4. Work collaboratively to gather and analyze stakeholder needs and requirements to align those with healthcare services and product priorities and objectives.
5. Apply data analytics principles to evaluate business structures, sources of capital, project cash flow, revenue cycles and third-party payment models.

ADMISSION REQUIREMENTS

- Undergraduate degree (or expected completion of an undergraduate degree prior to enrollment) with a minimum 3.00 overall GPA.
- If your undergraduate GPA is less than a 3.0 on a 4.0 scale, there are two options:
  - Take the GMAT and achieve a score of 1050 using the formula: 200 x (undergraduate GPA) + GMAT score.
  - GMAT requirement may be waived based on professional experience following the Program Director's review of application
- Three undergraduate-level credit hours in the following:
  - Statistics
  - Finance OR Accounting

  In lieu of these undergraduate courses, applicants may choose to satisfy this requirement by completing the course work with Peregrine Academic Services. Gannon University contracts with Peregrine to provide a low-cost, non-credit alternative. These modules are self-paced, on-line offerings that include all materials.

  Applicants are asked to submit the following information to the Gannon University Office of Graduate Admissions:
- Completed graduate application (online)
- Official academic transcripts from all prior institutions
- Professional resume

COURSE DESCRIPTIONS

GMHA 601 Introduction to Health Systems Organizations and Management
3 credits
Prerequisites: None
This course introduces students to the management of healthcare organizations. It includes an examination of the environments in which the organizations operate, including the following: the types of organizations in the care continuum, types and categorizations of practitioners and clinicians, and the role of insurers, policymakers and regulators. The course also introduces students to the topic of underserved and vulnerable populations as well as innovation in the healthcare industry. The course also describes how healthcare services are financed in various delivery models including: The Beveridge Model, The Bismarck Model, The National Health Insurance Model and the Out-of-Pocket Model.

GMHA 606 Healthcare Information Systems and Technology
3 credits
Prerequisites: GMHA 601
This survey and analysis of healthcare information systems planning, and leadership prepares health administrators to communicate productively with information technology and clinical professionals. The course explores the challenges of selecting and implementing information systems to achieve organizational mission. The course focuses on how and from whom health administrators should gather information and judge its veracity. It also considers other organizational data and issues that go into selection decisions and implementation plans. Attention will be given to various stakeholders and how to manage their impact on IT projects.

GMHA 611 Healthcare Research and Quantitative Methods
3 credits
Prerequisites: GMHA 601 and Statistics
This course focuses on the value of various research methods and resulting data for running an efficient and effective organization. The course focuses on the development of skills to assemble and analyze research information. The course acknowledges that most health administrators will not be designing and running research projects but that they must be able to communicate with researchers in a variety of disciplines. They must be able to recognize quality research protocols and select findings that can complement data from other disciplines in leadership decision making.

GMHA 661 Healthcare Finance
3 credits
Prerequisites: GMHA 601 and Accounting or Finance
This course explores financial theory and its practical application in healthcare across a full application in healthcare across a full range of facilities, from hospitals and home health agencies to skilled nursing facilities, surgical centers, and private physician practices.

Information Assurance and Cybersecurity

Director: Joshua C. Nwokeji, Ph.D.

INTRODUCTION

Information Assurance has been one of the most dynamic fields in recent decades. With growing demand for computing professionals, the who wish to stay abreast of the rapidly changing technological world. Emphasis is placed on the development of the student's skill for independent study and continued professional growth.

Keeping our critical cyber infrastructure safe and secure while maintaining privacy is a major concern. The report by Cybersecurity Ventures [1] predicts that there will be 3.5 million unfilled cybersecurity positions globally by 2021. The Bureau of Labor Statistics has also predicted that the current number of cybersecurity job openings is up. Every cybersecurity worker needs to be equipped with cybersecurity concepts and know-how to protect and defend apps, data, networks, devices, critical systems, infrastructure, and people. This program is aimed to is filling the void and designed for professionals who work full-time. It provides post bachelor's academic credentials for their success leading to targeted industry-recognized certifications. Each of the two certificates targets professionals holding a nontechnical undergraduate or graduate degree and looking to improve their knowledge in cybersecurity, increase their job prospects, or take the first step towards a graduate degree in the cybersecurity field.

PROGRAM OUTCOMES

At the conclusion of any of the programs of study leading to the degree of Master of Science in Information Assurance and Cybersecurity, the graduate is able to:

IA&C-1. Identify patterns in cybersecurity intrusion detection and preventing techniques.

IA&C-2. Manage large-scale network management and security implementation on ground and cloud and the practical issues surrounding how the data privacy and security.

IA&C-3. Able to use creativity, critical thinking, and analysis and research skills to solve theoretical and real-world problems in cybersecurity field.

IA&C-4. Recognize professional responsibilities including and make informed decisions in cybersecurity practice.

IA&C-5. Communicate competently in a variety of cybersecurity professional contexts.

IA&C-6. Provide a research or development contribution or development of value to the profession, industry or society

DEGREE OFFERED

The program offers a Master of Science in Information Assurance and Cybersecurity (MS-IAC) degree.

ADMISSION REQUIREMENTS

1. An applicant must present a baccalaureate degree with a GPA of at least 2.5/4.0.
2. Completed graduate application
3. Complete resume
4. Transcripts from all prior institutions
5. Three letters of recommendation
6. TOEFL scores if English is not a first language

Factors for consideration include work experience in related areas of CIS and letters of recommendation. A committee appointed by the department chairperson will review applications for admission.

ADMINISTRATION

Retention is contingent on maintaining at least a 3.0 grade point average (GPA). The course work is expected to be completed within two years for full-time students and within six years for part-time students. The degree requirements are at least thirty credit hours of study.

The program is intended to be offered in both face-to-face and online delivery mode, and typically includes completion of both the *Cybersecurity Essentials Certificate* and the *Information Systems Security Certificate* as part of completing the program. the face-to-face delivery mode, academic semester consists of fourteen to fifteen weeks of instruction, including one week for final exams. The courses are scheduled as regular sessions and classes meet in rooms appropriate for the course being taught. Courses requiring the use of lab equipment as part of their instructional model are taught in computer teaching labs and may include an additional lab fee.

In online delivery mode, each academic semester typically consists of fourteen weeks with two courses offered in sequence. The courses are scheduled as regular online, 7-week courses. Courses requiring the use of lab equipment as part of their instructional model are taught in with distributable software/licenses and/or simulations. Courses requiring these additional materials may include a modest course fee.

The University's policy is that a master's degree program must be completed within six years of taking the first course. Only the Program Director and/or the Dean can grant exceptions.

PROJECT REQUIREMENT

Each graduate student is expected to conduct a directed research / development project or thesis for completion of the degree; (see Plans A and B below). To propose an independent project, the student requests a specific CySec faculty member as the project advisor to chair his/her review committee in agreement with the CySec faculty member. Decisions about the topic, project advisor and the committee members are shared between the student and the review committee chair. The committee members participate in reviewing quality and content for the directed research project/thesis and its written component. These project proposals and formulation of graduate project/thesis committees must be completed prior to registration for any Directed Project or Directed Research credits.

Proposal sessions are scheduled during the last weeks of each semester. Various communication channels are utilized to disseminate the procedure and deadline on signing up for proposal sessions. Students, who wish to register for GCYSEC 698/GCYSEC 699 credits for the coming semester, must follow the communicated procedure and deadline to be scheduled in one of the proposal sessions.

The directed research project/thesis advisor directs the student's work and determines when to recommend the manuscript for review by a faculty committee. The review committee is appointed by the usual academic approval sequence and consists of at least two full- time Gannon CIS faculty members familiar with the subject material and one optional member from outside the CIS department. The outside member can be from industry. The committee is responsible for supporting the student in their work and assessing the quality of the project. After final corrections are made in the project and/or supporting documentation, the student will give an oral defense of their work before the committee. The CIS faculty member who chairs the review committee becomes the student's academic advisor.

Plan A (Directed Research): GCYSEC 699

The student is required to complete a 3-credit independent/team IAC research project and to pass a final oral examination covering the student's project area and related subject areas. The content of the independent/ team research should be in-depth scholarship culminating in a publishable-quality manuscript. The content should represent a researched and creative expression of the student's advanced capability as a result of the graduate program. The directed research must be *proposed and approved prior* to the commencement of the independent/team project work. Proposals must be approved *prior* to registering for research credits. Per department guidelines, directed research students register for GCYSEC 699 *Directed Research* when completing the research effort and after having received agreement from a faculty member to be the chair of the student's research effort.

Plan B (Directed Project): GCYSEC 698

The student is required to complete a 3-credit independent/team IAC project and to pass a final oral examination covering the student's project area and related subject areas. The content of the independent/ team project can be either (1) study and development of a prototype-level application culminating in a publishable-quality technical report. The content should represent a researched and creative expression of the student's advanced capability as a result of the graduate program. The directed development project must be *proposed and approved prior* to the commencement of the independent/team project work. Proposals must be approved *prior* to registering for project credits. Per department guidelines, directed project students register for GCYSEC 698 *Directed Project* when completing the development effort and after having received agreement from a faculty member to be the chair of the student's development effort.

While enrolled in GCYSEC 698 and GCYSEC 699 *Directed Research*, the student is required to satisfy other department-stipulated activities such as attendance at research seminars, participation in research presentations, and writing- or research-improvement seminars.

THE CURRICULUM PLAN

The MS-CYSEC is a professional degree program. Students may begin studies with a wide variety of academic and work backgrounds.

Courses are presented in three general categories:

- **Cyber Essentials Courses:** 12 credits of required coursework.
- **Information Assurance Courses:** 12 credits of required coursework.
- **Cyber Electives:** 3 credits required of upper-division coursework.

The student must complete 30 credits of graduate course work. Students must maintain a cumulative grade point average of at least 3.0 for the duration of their master's degree program. A total of ten graduate level courses (500-level or higher), exclusive of foundations-series courses are required. Students seeking placement for required coursework may be granted placement for certification, significant work experience on review of the program director.

COURSE OF STUDY

Information Assurance and Cybersecurity is a dynamic and fast-growing field at the interface of hardware and software. The emergence of massive cyber-attacks on every area and size business. The MS-ISA program prepares students to understand major practice areas in Information Assurance and Cybersecurity. The program's comprehensive curriculum will provide you with a solid scientific and technical foundation for pursuing either doctoral work or advanced positions in business, industry and government.

In addition to the overall program outcomes, at the conclusion of the program of study, the Cyber-option graduate will be able to:

This program in Information Assurance and Cybersecurity is broken into three components:
Cybersecurity Essentials a 12-credit certificate program that can be completed in one year. It is a shorter commitment for working professionals who want to expand their careers into cybersecurity. This certificate prepares the participants for three industry professional certifications; CompTIA Networking +, CompTIA Security +, and Global Information Assurance Certification (GIAC).

This coursework lays the foundations for:
Information Systems Security is a 12-credit certificate program that can be completed in one year. Based on the Center of Academic Excellence in Cyber Defense Education (CAE-CDE) Designation Requirements. This certificate builds additional cyber competencies, preparing participants for the Certified Information Systems Security Professional (CISSP) certification.

Information Assurance Capstone a 6-credit 'cap off' to the IAS program that can be completed in one year or less. It consists of an advanced elective in Information Assurance and a directed graduate technical or research project.

CURRICULUM REQUIREMENTS

Cybersecurity Essentials (12 credits): ***Four courses:***
GCYSEC 501 Networking Fundamentals
GCYSEC 502 Cybersecurity Foundations
GCYSEC 503 Security Leadership
GCYSEC 504 Cybersecurity Management

Information Assurance (12 credits): ***Four courses:***
GCYSEC 605 Asset Security and Risk Management
GCYSEC 606 Information Security Architectures
GCYSEC 607 Security Assessment and Access Control
GCYSEC 608 Operations and Software Development Security

Cybersecurity Elective (3 credits): ***Select one of two courses:***
GCYSEC 609 Digital Forensics
GCYSEC 610 Network Management and Security Implementation

Directed Project or Directed Research (3 credits): ***One of:***
GCYSEC 698 Directed Project or
GCYSEC 699 Directed Research

DEPARTMENT POLICIES

Incomplete Grades in IAC coursework
Incomplete ("I") grades for a course within the CIS Department require students to follow extra procedures in order for the "I" grade to be appropriately handled.

- Students must obtain confirmation from the course instructor to be assigned the "I" grade.
- The course instructor and student complete and sign an *"Incomplete Grades"* form **before** issuing the "I" grade. The form identifies required deliverables, expected delivery dates, and consequences for not following through on the work.
- The course instructor and student complete and sign a *"Behavioral Contract"*. The contract stipulates other activities and arrangements expected of the student in order to earn a grade in the course.
- The course instructor submits both forms to the department and to Graduate Records.
- If the "I" grade is assigned for either GCYBER 698 Directed Research or GCYBER 699 Directed Research, then the student is also required to register for GCIS 697 (1 cr.) Directed Project in the semester when the incomplete work is being done. Registering for GCIS 697 Directed Project is to occur regardless of the other courses registered in the semester.

Research and Technical Projects
All qualifying research and/or technical projects must be successfully proposed to the department faculty and have a review committee assigned prior to course registration. Standards for project scope and proposal methods are managed by the department chair. Externally-sponsored projects are encouraged, but not required. All projects must have a computing faculty member in charge of the work, with a supporting committee of two department faculty and optionally one external committee member. The committee is assigned by the chair prior to registration. The committee is responsible for:

- Supporting the student in completing their work
- Approving changes to the defined work scope,
- Judging the quality of the project work through the written and oral presentations of the work.
- Grading of these courses is by the committee as a whole.

Students are responsible to identify the project, stakeholders and/or topics, and complete the project on their own. Students are encouraged to identify and start work on their projects, especially requirements and exploratory research prior to proposing their projects. Students should register for their project or thesis credits in the semester that they expect to complete the project, not necessarily in the semester they start the project. Please refer questions to the program director or chair.

C-Grade Policy
Gannon graduate students are required to earn a grade point average (GPA) of 3.0 or better in order to successfully complete the graduate program. IAC graduate students are expected to maintain a semester GPA of 3.0 or better. Because of IAC scheduling patterns, the necessity of retaking a course to improve one's GPA may cause the duration of one's graduate studies to extend one year or more.

COURSE DESCRIPTIONS

GCYSEC 501 Networking Fundamental
3 credits
Prerequisite: None
Topics include networking models and media, architectures, topologies, devices, protocols, use of tools, processes, threads, memory, file systems, virtualization, access control, domain separation, process isolation, resource encapsulation, and least privilege.

GCYSEC 502 Cybersecurity Foundations
3 credits
Prerequisite: GCYSEC 501 or equivalent
Topics include Malware, vulnerability scanning, and penetration testing; Network components, frameworks, and secure network architectures; Identity and access management control; Policies, plans, and procedures; and cryptographic concepts.

GCYSEC 503 Security Leadership
3 credits
Prerequisite: GCYSEC 501 or equivalent
Topics include cryptographic applications; incident response and business continuity; and managing security operations center, application security, negotiations and vendors, projects, and security architecture.

GCYSEC 504 Cybersecurity Management
3 credits
Prerequisite: GCYSEC 501 or equivalent
Topics include managing security awareness and policy, system security and program structure; network monitoring, security and privacy; network concepts; risk management and security frameworks; and vulnerability management.

GCYSEC 605 Asset Security and Risk Management
3 credits
Prerequisite: GCYSEC 501 or equivalent
This course focuses on access control, information security governance and risk management, cryptography, security architecture and design, software security, business continuity, and disaster recovery planning, network security, physical security, operations security, laws, regulations, investigations, and compliance.

CYSEC 606 Security Architecture for Information Communication and Networks
3 credits
Prerequisites: GCYSEC 605
This course focuses on access control, cryptography, security architecture and design, network security, security capabilities of information systems.

CYSEC 607 Assessment of Identity and Access
3 credits,
Prerequisites: GCYSEC 605
This course focuses control physical and logical access, and design appropriate asset retention, information security controls.

CYSEC 608 Software Development and Operation Security
3 credits
Prerequisites: GCYSEC 605
This course focuses on access control, cryptography, security architecture and design, network security, security capabilities of information systems.

GCYSEC 609 Digital Cyber Forensics
3 credits, FA-1
Prerequisites: GCYSEC 605 Asset Security and Risk Management
This course focuses on computer and cyber forensics. Students will learn different aspects of computer and cybercrime and ways in which to uncover, protect, exploit, and document digital evidence. Students will be exposed to different types of tools (both software and hardware), techniques and procedure, and be able to use them to perform rudimentary forensic investigations.

GCYSEC 610 Cryptography and Network Security
3 credits, FA-2
Prerequisites: GCYSEC 605 Asset Security and Risk Management
This course provides theoretical and applied foundations of essential skills and knowledge for effectively utilizing networks and Internet technologies to facilitate, manage and secure data communications. GCYSEC reviews information network technologies and vulnerabilities of any network.

GCYSEC 690-695 Special Topics in Cybersecurity
1-3 credits, per program director
Prerequisite: Specific prerequisites are topic-related
The course offers presentation of topics that are emerging as the field of Information Assurance and Cybersecurity change rapidly. The objectives and content reflect the interests of the faculty and the students relative to the topic.

GCIS 697 Project Continuation
1 credit
Prerequisite: Incomplete grade in GCYBER 698 or GCYBER 699 or permission of the chair.
Continuation of directed project or research efforts.

GCYSEC 698 Directed Project
3-6 credits
Prerequisites: Satisfactory completion of 12 credits in the MS-IAC program; Satisfactory Performance in GCYSEC608 or equivalent. Successful formulation and oral defense of project proposal.

This course tracks the completion of an independent project and to pass a final oral examination covering the student's project area and related subject areas. The content of the independent project to develop prototype-level application culminating in a publishable-quality technical report (hereafter referred to as a 'technical project').

The project content represents a researched and creative expression of the student's advanced capability as a result of the graduate program. The directed research project must be proposed and approved prior to the commencement of the independent project work.

GCYSEC 699 Directed Research
3-6 credits
Prerequisites: Satisfactory completion of 12 credits in the MS-IAC program; Satisfactory Performance in GCYSEC608 or equivalent. Successful formulation and oral defense of project proposal.

This course tracks the completion of an independent project and to pass a final oral examination covering the student's project area and related subject areas. The content of the independent project to develop in-depth scholarship culminating in a publishable-quality manuscript (hereafter referred to as a 'research project') The project content represents a researched and creative expression of the student's advanced capability as a result of the graduate program. The directed research project must be proposed and approved prior to the commencement of the independent project work.

Information Systems Security Certificate – Online

Program Director: Joshua C. Nwokeji, Ph.D.

INTRODUCTION

Businesses and federal agencies are looking forward to retraining their employees in cybersecurity; Employees are looking for transformative opportunities in cybersecurity; Google started offering online cybersecurity courses for individuals without a specific background in computing. The Information Systems Security certificate provides the foundation for Professionals holding a nontechnical undergraduate or graduate degree and looking to build cybersecurity competencies, obtain professional industry certifications, increase job prospects, or take the first step towards a cybersecurity master's degree. Individuals in the cyber field need to be equipped with cybersecurity concepts and knowledge to protect and defend apps, data, networks, devices, critical systems, infrastructure, and people. The goal of the certificate is to build cyber competencies by providing the foundational knowledge needed to obtain the CISSP (Certified Information Systems Security Professional).

The Information Systems Security Certificate curriculum is based on the Center of Academic Excellence in Cyber Defense Education (CAE-CDE) Designation Requirements. It is a 12-credit certificate program that can be completed in one year. Courses will be offered in 7-week format. The certificate is delivered online. The length of the program will be two semesters by taking two courses per semester.

CERTIFICATE OUTCOMES

After the certificate, the participants will be able to:

1. The participants will be able to demonstrate appropriate skills in information security governance, technologies, components, and issues related to information security.
2. The participants will be able to understand the essential domains of and applications of a common body of knowledge (CBOK) in information security and assurance.
3. Participants will be able to securely provisioning resources, understand and apply foundational security operations concepts and apply resource protection techniques.

ADMISSION REQUIREMENTS

1. Completion of an undergraduate degree with a 2.5 QGPA or better
2. Completed application
3. Transcripts for college coursework
4. TOEFL/other scores if English is not the first language

COURSE DESCRIPTIONS

CYSEC 605 Asset Security and Risk Management
3 credits
Prerequisite: GCYSEC 501 or equivalent
This course focuses on access control, information security governance and risk management, cryptography, security architecture and design, software security, business continuity, and disaster recovery planning, network security, physical security, operations security, laws, regulations, investigations, and compliance.

CYSEC 606 Security Architecture for Information Communication and Networks
3 credits
Prerequisites: GCYSEC 605
This course focuses on access control, cryptography, security architecture and design, network security, security capabilities of information systems.

CYSEC 607 Assessment of Identity and Access
3 credits
Prerequisites: GCYSEC 605
This course focuses control physical and logical access, and design appropriate asset retention, information security controls.

CYSEC 608 Software Development and Operation Security
3 credits
Prerequisites: GCYSEC 605
This course focuses on access control, cryptography, security architecture and design, network security, security capabilities of information systems.

See catalog descriptions in the *Information Assurance and Cybersecurity* (MS-IAC) program listing.

Nursing

Associate Dean: Dawn Coburn Joy, Ph.D., RN, CNE

INTRODUCTION

Upon completion of program requirements, students are awarded the Master of Science in Nursing (MSN) degree. The program integrates nursing leadership, research, and clinical practice. Graduates are able to respond to challenges facing nursing and the health care system through advanced clinical practice and scientific inquiry.

The MSN degree is awarded to graduates who complete requirements for a specific advanced practice option in an identified area of nursing practice. Currently, students may select from Family Nurse Practitioner or Nurse Anesthesia.

The master's degree program in nursing and the post graduate APRN certificate program at Gannon University is accredited by the Commission on Collegiate Nursing Education (http://www.ccneaccrediation.org).

OUTCOMES

At the conclusion of the program of study leading to the degree of Master of Science in Nursing, the graduate:

1. Synthesizes theory and research from nursing, the biopsychosocial sciences, and the humanities in their advanced practice role to care for members of diverse populations.
2. Is able to conduct research, collaborate with other researchers from various disciplines, and implement research findings in practice or educational settings.
3. Is able to assume the advanced practice role of administrator, researcher, or practitioner.
4. Is prepared to assume a leadership role to influence change in health care practice at local, regional, and national levels.
5. Articulates and differentiates the various advanced practice roles within nursing.
6. Has developed an understanding of the importance of maintaining professional development in their advanced practice role.
7. Actively engages in collaborative relationships as an advanced practice nurse with professionals from various disciplines and members of diverse populations to improve health care.
8. Has acquired an educational foundation for doctoral study.

PART-TIME OPPORTUNITIES IN THE GRADUATE NURSING PROGRAM

Opportunities for part-time study are available to students in one of the two program options (CRNP). Courses are scheduled three semesters per year (fall, spring, and summer).

NOTE: Course offerings in any graduate nursing option are contingent on sufficient enrollment.

ADMISSION REQUIREMENTS

Registered nurses who have a Bachelor of Science degree with a major in Nursing from an accredited program are eligible to apply for admission to graduate study. Applicants must:

- Submit an application for admission.
- Provide transcripts of all academic work.
- Complete an introductory statistics course and an undergraduate research course with a grade of at least a "B" in both courses.
- Submit competitive scores from the Graduate Record Examination. Provide three letters of recommendation from individuals who can speak to the candidate's academic and professional expertise.
- Provide three letters of recommendation from individuals who can speak to the candidate's academic and professional expertise.
- Give evidence of the fulfillment of legal requirements for the practice of nursing in the United States.
- Personal interview.

NOTE: Specific MSN program options may require additional admission criteria.

RESEARCH REQUIREMENT

Each graduate student in nursing is required to prepare a research study or evidence-based practice project and submit a formal research report prior to graduation. This requirement includes six credits of study – three credits of GNURS 620, and three credits of GNURS 651 Research Seminar. Students are guided through the process by a doctorally-prepared nursing faculty member.

THE CURRICULUM PLAN

The graduate nursing program requires students to complete 42 credits. All students are required to complete six credits of core nursing knowledge courses – three credits of GNURS 620: Foundations of Research and Theoretical Frameworks in Nursing and three credits of GNURS 526: Role Theory and Professional Issues in Nursing.

Master of Science in Nursing Options

Course of Study for Family Nurse Practitioner

The Family Nurse Practitioner program prepares students for the nurse practitioner role with experience to care for patients across the lifespan. Our faculty provide expertise and mentoring in assessment, diagnosis, and implementation of advanced practice care to individuals, families, and groups in the community setting. Ethical dilemmas and legal issues related to the advanced practice role are addressed. Preparation to serve as a primary care provider and leader in community practice is acquired from theoretical knowledge developed through online courses and clinical practice experience gained through hands-on training in diverse clinical settings. Students learn to conduct needs assessments to deliver a community-wide system of health care services.

CURRICULUM REQUIREMENTS

(42 Total Credits)

The planned course sequence that follows is for part-time study and is delivered as an asynchronous online program.

FIRST YEAR

Fall Semester – 6 credits

GNURS 526	Role Theory and Professional Issues in Nursing	3
GNURS 587	Advanced Pathophysiology 1	3

Spring Semester – 6 credits

GNURS 588	Advanced Pathophysiology 2	3
GNURS 589	Pharmacotherapeutics	3

SECOND YEAR

Fall Semester – 6 credits

GNURS 620	Foundations of and Theoretical Frameworks in Nursing	3
GNURS 590	Advanced Physical Assessment	3

Spring Semester – 9 credits

GNURS 651	Research Seminar	3
GNURS 660	Family Nurse Practitioner Theory 1	3
GNURS 663	Family Nurse Practitioner Practicum 1	3

Summer Session – 7 credits

GNURS 661	Family Nurse Practitioner Theory 2	3
GNURS 664	Family Nurse Practitioner Practicum 2	4

THIRD YEAR

Fall Semester – 8 credits

GNURS 662	Family Nurse Practitioner Theory 3	3
GNURS 665	Family Nurse Practitioner Practicum 3	5

NOTE: * indicates courses required for a Family Nurse Practitioner Certificate.

Family Nurse Practitioner Certificate
For students with an earned MSN, a Family Nurse Practitioner Certificate may be earned by taking the 33 didactic and clinical course credits indicated with an asterisk. If the student has not completed a thesis, the research component will be required. Certificate students are admitted on a space-available basis.

Family Nurse Practitioner (Post-Graduate APRN Certificate)

INTRODUCTION

For students with an earned MSN, a Family Nurse Practitioner Certificate may be earned by taking the 33 didactic and clinical course credits.

The Family Nurse Practitioner program prepares students for the nurse practitioner role with experience to care for patients across the lifespan. Our faculty provide expertise and mentoring in assessment, diagnoses, and implementation of advanced practice care to individuals, families, and groups in the community setting. Ethical dilemmas and legal issues related to the advanced practice role are addressed. Preparation to serve as a primary care provider and leader in community practice is acquired from theoretical knowledge developed through online courses and clinical practice experience gained through hands-on training in diverse clinical settings. Students learn to conduct needs assessments to deliver a community-wide system of health care services.

OUTCOMES

At the conclusion of the program of study leading to the Post-Graduate APRN Certificate, the graduate:

1. synthesizes theory and research from nursing, the biopsychosocial sciences, and the humanities in their advanced practice role to care for members of diverse populations.
2. is able to conduct research, collaborate with other researchers from various disciplines, and implement research findings in practice or educational settings.
3. is able to assume the advanced practice role of administrator, researcher, or practitioner.
4. is prepared to assume a leadership role to influence change in health care practice at local, regional, and national levels.
5. articulates and differentiates the various advanced practice roles within nursing.
6. has developed an understanding of the importance of maintaining professional development in their advanced practice role.
7. actively engages in collaborative relationships as an advanced practice nurse with professionals from various disciplines and members of diverse populations to improve health care.
8. has acquired an educational foundation for doctoral study.

ACCREDITATION

The Family Nurse Practitioner Past-Graduate APRN Certificate program in nursing at Gannon University is accredited by the Commission on Collegiate Nursing Education (http://www.ccneaccreditation.org).

ADMISSION REQUIREMENTS

Registered nurses (RNs) who have a Master of Science degree with a major in nursing from an accredited program are eligible to apply for admission to graduate study.

Applicants must:
- submit a complete application for admission;
- submit official transcripts of all previous academic work;
- demonstrate completion of an introductory statistics course and a research course with a grade of at least a "B" or higher;
- submit competitive scores from the Graduate Record Examination (GRE);
- provide three letters of recommendation from individuals who can speak to the candidate's academic and professional expertise;
- provide evidence of the fulfillment of legal requirements for the practice of nursing in the United States; and
- complete a successful interview with the admissions committee for the family nurse practitioner program.

THE CURRICULUM PLAN

The Family Nurse Practitioner Post-Graduate APRN Certificate program requires students to complete 33 credits. All students are required to complete six credits of core nursing knowledge courses – three credits of GNURS 525: Theoretical Foundations of Nursing and three credits of GNURS 526: Role Theory and Professional Issues in Nursing.

CURRICULUM REQUIREMENTS

(33 Total Credits)
The planned course sequence that follows is for part-time study and is delivered as an asynchronous online program.

FIRST YEAR
Fall Semester – 3 credits

GNURS 587	Advanced Pathophysiology 1	3

Spring Semester – 6 credits

GNURS 588	Advanced Pathophysiology 2	3
GNURS 589	Pharmacotherapeutics	3

SECOND YEAR
Fall Semester – 3 credits

GNURS 590	Advanced Physical Assessment	3

Spring Semester – 3 credits

GNURS 660	Family Nurse Practitioner Theory 1	3
GNURS 663	Family Nurse Practitioner Practicum 1	3

Summer Session – 7 credits

GNURS 661	Family Nurse Practitioner Theory 2	3
GNURS 664	Family Nurse Practitioner Practicum 2	4

THIRD YEAR

Fall Semester – 8 credits

GNURS 662	Family Nurse Practitioner Theory 3	3
GNURS 665	Family Nurse Practitioner Practicum 3	5

Course of Study for Nurse Anesthesia

The Nurse Anesthesia option is designed to provide the professional nurse with an in-depth concentration in clinical anesthesia and prepare graduates of the program to assume the specialized role of nurse anesthetist. Students have the opportunity to use research, collaborate, and contribute effectively to the health care team's efforts to provide optimal patient care. Upon completion of the program, students will be eligible to take the National Certification Exam of the National Board of Certification and Recertification for Nurse Anesthetists Council on Certification of Nurse Anesthetists. This graduate nursing option is a cooperative program between Gannon University and UPMC-Hamot Medical Center. Donald Larmon, DNP, MSN, CRNA is the director of this program.
NOTE: Students must attend full-time in this option.

This program is no longer accepting new admissions as of spring 2021 Please see BSN-DNP Anesthesia program information.

ADMISSION REQUIREMENTS

Professional nurses who have a Bachelor of Science degree with a major in Nursing from an accredited program are eligible to apply for admission. NOTE: **The Nurse Anesthesia program of study begins only in January. The application deadline is May 1 of each calendar year.** Applicants seeking admission to the Nurse Anesthesia option must:

- Submit an application for admission – deadline for submission is May 1 for classes beginning the following January.
- Provide official transcripts of all academic work.
- Give evidence of the fulfillment of legal requirements for the practice of nursing in the United States.
- Provide evidence of having completed an introductory statistics course and an undergraduate research course with a grade of at least a "B" in both courses.
- Provide evidence of a cumulative GPA of 3.0 for undergraduate math and science courses.
- Provide evidence of a cumulative GPA of 3.0 for the last 60 hours of undergraduate nursing studies.
- Submit competitive scores from the Graduate Record Examination.
- Provide four letters of recommendation from former professors and employers who are able to comment on the applicant's ability to successfully pursue graduate study in the nurse anesthesia option.
- Have at least two years of clinical experience in which critical judgments are made, i.e., critical care, prior to the May 1 deadline.
- Be interviewed and selected for admission by the Gannon University Villa Maria School of Nursing and UPMC-Hamot Medical Center School of Anesthesia Admission Committee.

CURRICULUM REQUIREMENTS

This program of study can only be completed on a full-time basis.

FIRST YEAR

Spring Semester

GNURS 525	Theoretical Foundations of Nursing	3
GNURS 561	Chemistry and Physics of Anesthesia *	3
GNURS 627	Physiology for Anesthesia 1 *	4
GNURS 630	Advanced Physical Assessment and Foundations of Anesthesia Nursing 1 *	3
GNURS 625	Pharmacology for Anesthesia 1 *	3
		16 credits

Summer Session

GNURS 617	Anesthesia Clinical Practicum 1 *	0
GNURS 725	Advanced Anesthesia Nursing 1 *	3
GNURS 628	Physiology for Anesthesia 2 *	3
GNURS 632	Advanced Physical Assessment and Foundations of Anesthesia Nursing 2 *	3
		9 credits

Fall Semester

GNURS 618	Anesthesia Clinical Practicum 2 *	0
GNURS 629	Physiology for Anesthesia 3 *	2
GNURS 650	Research Methods	3
GNURS 626	Pharmacology for Anesthesia 2*	3
		8 credits

SECOND YEAR

Spring Semester

GNURS 526	Role Theory and Professional Issues in Nursing	3
GNURS 619	Anesthesia Clinical Practicum 3 *	0
GNURS 651	Research Seminar	3
GNURS 726	Advanced Anesthesia Nursing 2 *	3
		9 credits

Summer Session

GNURS 717	Anesthesia Clinical Practicum 4 *	0
GNURS 721	Thesis Guidance	1
		1 credit

Fall Semester

GNURS 718	Anesthesia Clinical Practicum 5 *	0
GNURS 731	Integrated Role Seminar *	3
GNURS 721	Thesis Guidance	1
		4 credits

THIRD YEAR
Spring Semester

GNURS 719	Anesthesia Clinical Practicum 6 *	0
GNURS 721	Thesis Guidance	1
		1 credit
		Total credits: 48

NOTE: * indicates courses required for a Nurse Anesthesia Certificate.

The Nurse Anesthesia program and Certificate options are also accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA).

COURSE DESCRIPTIONS

GNURS 526 Role Theory and Professional Issues in Nursing
3 credits
This course is a core course.
This course deals with the examination of theories underlying the construction and definition of roles in society, with emphasis on the acquisition and meaning of advanced practice nursing roles. Professional issues and advanced practice roles are examined for their interrelatedness within the health care system. Emphasis is on role development, leadership, and research, and how these provide the basis for planned change within the health care system and the nursing profession.

GNURS 587 Advanced Pathophysiology 1
GNURS 588 Advanced Pathophysiology 2
3 credits each
Prerequisite: Graduate standing or permission of the program director. GNURS 587 is prerequisite to GNURS 588.
This two-course series is designed to provide didactic learning experiences that enable students to incorporate advanced knowledge specific to normal aging processes, physiology, and pathology of all major body systems into their advanced practice nursing role across the lifespan.

GNURS 589 Pharmacotherapeutics
3 credits
Prerequisites: GNURS 587 and; GNURS 588 or permission of the program director.
This course provides an in-depth analysis of the principles of pharmacology for registered nurses in an advanced practice role. Course content identifies the clinical judgment necessary for identifying the appropriate drug, dose, route, frequency, duration of treatment and nursing interventions necessary when presented with patients experiencing particular symptoms or disease states across the lifespan. In this decision-making process, patient factors – such as age, renal function, hepatic function, concurrent disease states, and current medications – as well as pharmacologic factors – such as pharmacokinetics, efficacy, and toxicity – are identified.

GNURS 590 Advanced Physical Assessment
3 credits
Prerequisites: GNURS 587 and GNURS 588. Graduate standing or permission of the program director.
This course expands nursing physical assessment skills to the level of advanced practice. Skills addressed include taking a health history, and physical, psychological, cognitive, and social assessments. Physical assessment skills span all age groups, but the focus in this course is on the adult. Advanced inspection, auscultation, percussion, and palpation skills are taught and practiced. Emphasis is on the application of knowledge specific to human anatomy, physiology, and pathophysiology to physical assessment.

GNURS 617 Anesthesia Clinical Practicum 1
0 credits
Prerequisite: GNURS 630 and graduate standing in the Nurse Anesthesia option.
The clinical Nurse Anesthesia curriculum is designed to allow the nurse anesthetist student to integrate didactic learning into the clinical practice of anesthesia. Clinical Practicum 1 provides the foundation for clinical practice. Basic anesthesia skills are learned and practiced during an appropriate orientation to clinical practice that precedes this initial clinical experience.

GNURS 618 Anesthesia Clinical Practicum 2
0 credits
Prerequisite: GNURS 617 and graduate standing in the Nurse Anesthesia option.
Clinical Practicum 2 builds on the basic skills learned and practiced in Clinical Practicum 1. It provides the nurse anesthetist student the opportunity to improve their basic anesthesia skills. Clinical Practicum 2 builds on the student's basic anesthesia knowledge and comprehension. The student demonstrates the use of didactic knowledge learned in the classroom and skills learned in the clinical setting to meet the perioperative needs of patients.

GNURS 619 Anesthesia Clinical Practicum 3
0 credits
Prerequisite: GNURS 618 and graduate standing in the Nurse Anesthesia option.
Clinical Practicum 3 builds on the advanced skills learned in Clinical Practicum 2. It provides the nurse anesthetist student the opportunity to improve their basic anesthesia skills, and to demonstrate advanced skills. Clinical Practicum 3 builds on the student's anesthesia knowledge and comprehension. The student demonstrates the use of didactic knowledge learned in the classroom and skills learned in the clinical setting to meet the perioperative needs of a variety of patients. Students begin to take a more active role in the decision-making process specific to the anesthesia needs of their patients.

GNURS 620 Foundations of Research and Theoretical Frameworks in Nursing.
3 credits
This course examines nursing theories, and that role that theoretical models play in providing a basis for the scientific application of the nursing research and the practice. Emphasis is placed on the systematic examination of the research process and theory construction, including critical analysis of research studies and examination of the relationship between theory, research and professional practice. This course provides graduate nursing students with the fundamental knowledge to design and conduct a research study utilizing a sound theoretical basis.

GNURS 625 Pharmacology for Anesthesia 1
3 credits
Prerequisite: GNURS 561 and graduate standing in the Nurse Anesthesia option.
This course is the first in a two-course series presenting requisite knowledge for the effective clinical practice of anesthesia. It provides in-depth knowledge specific to anesthesia pharmacology to nurse anesthetist students. Course content includes the pharmacokinetics and pharmacodynamics of anesthetic agents, muscle relaxants, and local agents. Emphasis is on knowledge specific to the uptake and distribution of anesthetics, as well as the metabolism, excretion, and elimination of anesthetic drugs.

GNURS 626 Pharmacology for Anesthesia 2
3 credits
Prerequisite: GNURS 625 and graduate standing in the Nurse Anesthesia option.
This course is the second in a two-course series for nurse anesthetist students presenting requisite knowledge for the effective clinical practice of anesthesia. Course content includes the pharmacokinetics and pharmacodynamics of the accessory drugs used in anesthesia practice. Emphasis is on drugs affecting the autonomic system, the central nervous system, and the cardiovascular system.

GNURS 627 Physiology for Anesthesia 1
4 credits
Prerequisite: Graduate standing in the Nurse Anesthesia option.
Corequisites: GNURS 561 and GNURS 630
This course is the first in a three-course series for nurse anesthetist students. Course content presents a detailed, systematic investigation of the anatomy, physiology, and pathophysiology of the cardiopulmonary system. Emphasis is on the integration of this knowledge into planning, implementation, and evaluation of care strategies for patients requiring anesthesia.

GNURS 628 Physiology for Anesthesia 2
3 credits
Prerequisite: GNURS 627 and graduate standing in the Nurse Anesthesia option.
This course is the second in a three-course series for nurse anesthetist students. Course content presents a detailed, systematic investigation of the anatomy, physiology, and pathophysiology of the endocrine and renal systems, including fluid, electrolyte, and acid-base physiology. Emphasis is on the integration of this knowledge into planning, implementation, and evaluation of care strategies for patients requiring anesthesia.

GNURS 629 Physiology for Anesthesia 3
2 credits
Prerequisite: GNURS 628 and graduate standing in the Nurse Anesthesia option.
This course is the third in a three-course series for nurse anesthetist students. Course content presents a detailed, systematic investigation of the anatomy, physiology, and pathophysiology of the neuromuscular system. Emphasis is on the integration of this knowledge into planning, implementation, and evaluation of care strategies for patients requiring anesthesia.

GNURS 630 Advanced Physical Assessment and Foundations of Anesthesia Nursing 1
3 credits
Prerequisite: Graduate standing in the Nurse Anesthesia option.
Corequisites: GNURS 561 and GNURS 627
This course is the first in a two-course series. It provides nurse anesthesia students with an introduction to the art and science of anesthesia. Course content identifies basic concepts of anesthesia and introduces the student to techniques and procedures specific to the practice of anesthesia. Reinforcement of didactic principles is accomplished by practice sessions in a structured laboratory setting.

GNURS 632 Advanced Physical Assessment and Foundations of Anesthesia Nursing 2
3 credits
Prerequisite: GNURS 630 and graduate standing in the Nurse Anesthesia option.
This course is the second in a two-course series for nurse anesthesia students. Course content includes progressive, guided instruction in the clinical anesthesia management of patients undergoing obstetrical, pediatric, orthopedic, and urologic surgery. Inpatient, outpatient, and trauma settings are included. Legal aspects of the practice of anesthesia are addressed. Reinforcement of didactic principles continues.

GNURS 651 Research Seminar
3 credits
Prerequisites: GNURS 620 or permission of the program director.
This seminar provides peer and faculty support to students developing their graduate research proposals. The major emphasis includes refining an area of research, identifying a researchable question, exploring the literature, critiquing literature relevant to the research area, and determining the appropriate method to answer the question under investigation. The majority of seminar sessions are devoted to student presentations of their research plans with peer and faculty feedback to strengthen the proposal.

GNURS 660 Family Nurse Practitioner Theory 1
3 credits
Prerequisites: GNURS 587, GNURS 588, GNURS 589, GNURS 590 and graduate standing in the Family Nurse Practitioner option.
Corequisite: GNURS 663
This course presents theoretical knowledge and skills necessary for the nurse practitioner student to develop effective strategies to analyze, manage, and prevent episodic problems common to a specific female population – women from adolescence through post-menopause. The focus is on providing care to women who live in rural areas.

GNURS 661 Family Nurse Practitioner Theory 2
3 credits
Prerequisites: GNURS 660, GNURS 663 and graduate standing in the Family Nurse Practitioner option.
Co-requisite: GNURS 664
This course presents theoretical knowledge and skills necessary for the nurse practitioner student to develop nursing competency in rural pediatric primary care practice. Course content identifies strategies and interventions to assist individuals and families who are coping with health problems affecting an age-specific population – infants through adolescents. The focus is on providing care to infants, children, adolescents, and families who live in rural areas. Emphasis is on providing health promotion and disease prevention nursing strategies to meet the health needs of this patient population.

GNURS 662 Family Nurse Practitioner Theory 3
3 credits
Prerequisites: GNURS 661, GNURS 664 and graduate standing in the Family Nurse Practitioner option.
Co-requisite: GNURS 665
This course focuses on being a Family Nurse Practitioner in rural settings – settings that meet the health care needs of an adult and aging population. This focus includes health promotion, episodic illness care, stable chronic illness care, and awareness of dealing with emergency situations that can present at rural health care sites. Ethical dilemmas and legal issues resulting from expectations of nurses in this advanced practice role will be addressed. Leadership roles in community practice will be discussed from a theoretical knowledge base. Content will be presented specific to conducting a needs assessment in rural communities to ensure organization of health services that provide for stabilization and continuity of health care.

GNURS 663 Family Nurse Practitioner Practicum 1
3 credits
Co-requisite: GNURS 660 and graduate standing in the Family Nurse Practitioner option.
This practicum focuses on the clinical application of theoretical knowledge and skills in the development of nurse practitioner strategies for health promotion and management of problems common to women and their families. The focus is on providing care to women and families who live in rural communities.

GNURS 664 Family Nurse Practitioner Practicum 2
4 credits
Co-requisite: GNURS 661 and graduate standing in the Family Nurse Practitioner option.
This practicum focuses on the clinical application of theoretical knowledge and skills in the development of nurse practitioner strategies for health promotion and management of problems common to pediatric and adolescent populations. The focus is on providing care to pediatric and adolescent populations in rural communities.

GNURS 665 Family Nurse Practitioner Practicum 3
5 credits
Co-requisite: GNURS 662
This practicum focuses on synthesis and evaluation of nurse practitioner clinical experiences. The development and implementation of the role of family nurse practitioner in providing for the health care needs of individuals and families in rural communities is evaluated. Emphasis is on the ability of the student to integrate theoretical and clinical components in an ambulatory care setting within a rural, community-wide system.

GNURS 684 or GNURS 685 Independent Study
1 to 3 credits
This course is designed to provide graduate students with learning experiences that enable them to independently explore a specific area of nursing. Exploration can focus on issues related to education, administration, practice, legislation, or scientific inquiry. With input from the faculty facilitator, the student self-identifies all components of the experience – including outcomes and specific strategies to meet outcomes.

GNURS 717 Anesthesia Clinical Practicum 4
0 credits
Prerequisite: GNURS 619 and graduate standing in the Nurse Anesthesia option.
Clinical Practicum 4 builds on the advanced skills learned in Clinical Practicum 3. The nurse anesthesia student will be given the opportunity to experience more difficult cases and apply new learning. The student will be required to demonstrate higher levels of application and comprehension in clinical practice.

GNURS 718 Anesthesia Clinical Practicum 5
0 credits
Prerequisite: GNURS 717 and graduate standing in the Nurse Anesthesia option.
Clinical Practicum 5 builds on the advanced skills learned in Clinical Practicum 4. It provides the nurse anesthetist student the opportunity to be more independent in meeting the anesthesia needs of their patients.

GNURS 719 Anesthesia Clinical Practicum 6
0 credits
Prerequisite: GNURS 718 and graduate standing in the Nurse Anesthesia option.
Clinical Practicum 6 builds on the advanced skills learned across the anesthesia curriculum. Nurse anesthesia students are now expected to be as independent as possible in the practice of anesthesia.

GNURS 725 Advanced Anesthesia Nursing 1
3 credits
Prerequisites: GNURS 632 and graduate standing in the Nurse Anesthesia option.
This course provides content specific to the application of didactic information to clinical situations. Nurse anesthesia students are introduced to anesthesia specialties in a seminar format. Specialties include pediatric, cardiovascular, otolaryngolic, and anesthesia for uncommon disease.

GNURS 726 Advanced Anesthesia Nursing 2
3 credits
Prerequisites: GNURS 725 and graduate standing in the Nurse Anesthesia option.
This course provides detailed instruction specific to the art and science of regional anesthesia and pain management. Reinforcement of didactic principles will be gained throughout the course by video, computer, and mannequin simulation.

GNURS 731 Integrated Role Seminar
3 credits
Prerequisite: Graduate standing in the Nurse Anesthesia option.
This course introduces the nurse anesthetist student to areas of professional responsibility. A wide range of topics are discussed. This course is designed to assist the student in analysis and evaluation of their advanced practice role. Offered in the fall semester.

BSN-DNP Anesthesia

Associate Dean: Dawn Coburn Joy, Ph.D., RN, CNE

INTRODUCTION

The Doctor of Nursing Practice with a concentration in Anesthesia option is designed to provide the professional nurse with an in-depth concentration in clinical anesthesia and prepare graduates of the program to assume the specialized role of nurse anesthetist. The Doctor of Nursing Practice (DNP) curriculum prepares students as leaders in their practice area. This option is a cooperative one between Gannon University and the UPMC Hamot School of Anesthesia, and complies with required educational changes, as outlined by the American Association of Colleges of Nursing (AACN) and the Council on Accreditation of Nurse Anesthesia Programs (COA). The curriculum of the UPMC Hamot School of Anesthesia/Gannon University was developed to uphold the program's mission to create a center of excellence for the advancement of nurse anesthesia education and clinical practice. Course content directs the DNP student to prepare, deliver and evaluate an evidence-based practice project in the clinical arena. This project is an immersion experience and not a research dissertation.

Upon completion of the program, students will be eligible to take the National Board of Certification and Recertification for Nurse Anesthetists (NBCRNA) examination required for certification as a CRNA.

OUTCOMES

At the conclusion of the course of study leading to the Doctor of Nursing Practice at Gannon University, the graduates will:

- be prepared in advanced nursing practice as culturally sensitive, competent, and safe practitioners and who deliver care and act as advocates for individuals, aggregates, and communities of varying diversity and socioeconomic levels.
- effectively use technology, large aggregate data bases, and information systems to identify, use, and create therapeutic nursing interventions that promote health and prevent disease.
- identify, analyze, and create evidence-based solutions to individual practice and organizational health care dilemmas.
- synthesize and utilize ethical, legal, political, and advocacy methodologies to positively impact health care practice and health care delivery systems.
- promote collaborative and multidisciplinary delivery of health care as members of teams and organizations across the health care practice arena. • provide quality nursing leadership and serve as mentors to other nurses, from novice nurses to nurses in advanced practice roles.

ADMISSION REQUIREMENTS

Professional nurses who have a Bachelor of Science degree with a major in Nursing (BSN) from an accredited program in the United States are eligible to apply for admission.

Provide transcripts of all academic work including an official transcript from each institution attended. Academic transcripts must support the following statements:

Candidates should have completed a graduate level statistics course and an undergraduate nursing research course with a grade of at least a B in both courses. The graduate level statistics course can be completed before the first semester of study or admitted students may choose to enroll in the graduate statistics course in the first summer semester as a co-requisite.

Completed an introductory statistics course and an undergraduate nursing research course with a grade of at least a B in both courses.

Cumulative GPA of 3.0 for undergraduate math and science courses.

Cumulative GPA of 3.0 for the last 60 hours of undergraduate nursing studies.

Provide evidence of the fulfillment of legal requirements for the practice of nursing in the United States including one copy of each of the following items:

- Nursing license
- PALS certification
- ACLS certification
- BCLS certification

Applicants must have two years recent full-time critical care experience and submit competitive scores from the Graduate Record Examination.

THE CURRICULUM PLAN

REQUIRED COURSES FOR BSN-DNP PROGRAM STUDY

FIRST YEAR

Summer Semester (May-August)		**All Online**
DNURS 826	Role Theory and Professional Issues in Nursing	3
DNURS 820	Foundations of Research and Theoretical Frameworks in Nursing	3
DNURS 861	Chemistry and Physics for Anesthesia 1	3

Fall Semester (August-December)		**All Online**
DNURS 801	Evidence-Based Practice/Theory	3
DNURS 805	Epidemiology and the role of the Advanced Practice Nurse	3
DNURS 806	Health Care Informatics	3
DNURS 825	Advanced Pharmacology for Anesthesia 1	3

Spring Semester (January - May)		
DNURS 827	Advanced Physiology Pathophysiology for Anesthesia 1	4
DNURS 830	Basic and Advanced Principles in Nurse Anesthesia 1	4
DNURS 890	Advanced Physical Assessment	3
DNURS 836	Advanced Pharmacology for Anesthesia 2	3
DNURS 802	Transcultural Influences on Health Care (Online)	3

SECOND YEAR

Summer Semester (May-August)		
DNURS 828	Advanced Physiology/ Pathophysiology for Anesthesia 2	3
DNURS 832	Basic and Advanced Principles in Nurse Anesthesia 2	4
DNURS 835	Basic and Advanced Principles in Nurse Anesthesia 3	3
DNURS 817	Anesthesia Clinical Practicum 1	1

Fall Semester (August-December)		
DNURS 829	Advanced Physiology/Pathophysiology for Anesthesia 3	2
DNURS 818	Anesthesia Clinical Practicum 2	2
DNURS 803	Leadership and Health Policy (Online)	3

Spring Semester (January - May)		
DNURS 840	Basic and Advanced Principles in Nurse Anesthesia 4	3
DNURS 819	Anesthesia Clinical Practicum 3	2
DNURS 804	Scientific Underpinnings of Advanced Practice Nursing (Online)	3
DNURS 831	Professional Practice Issues in Nurse Anesthesia	3

THIRD YEAR

Summer Semester (May-August)		
DNURS 837	Anesthesia Clinical Practicum 4	2
DNURS 808	Evidence Based Project/ Specialty Practice Implementation	3

Fall Semester (August-December)		
DNURS 838	Anesthesia Clinical Practicum 5	2
DNURS 809	Evidence Based Project/ Specialty Practice Dissemination	3

Spring Semester (January - May)		
DNURS 839	Anesthesia Clinical Practicum 6	2

COURSE DESCRIPTIONS

DNURS 801 Evidence-Based Practice/Theory
3 credits
Emphasis is on the use of evidence on the delivery of health care and the measurement of outcomes in advanced nursing practice. Methods to improve practice, identify and test interventions and health care delivery models, and evaluate health care outcomes will be explored. Content provides a synthesis of best research evidence with clinical expertise and client values to direct practice for the best health care outcomes.

DNURS 802 Transcultural Influences on Health Care
3 credits
This course emphasizes the impact of culture, belief systems, and societal norms on the delivery of health care for diverse populations. Diversity is studied in relation to roles, expectations, and social organization. Emphasized are the tools necessary to acquire the knowledge and skills to demonstrate culturally aware communication and cultural assessment which will identify strategies for enhancing health outcomes of ill and well patients, families, and communities. Transcultural nursing concepts, theories and models will be applied to the analysis of health disparities and health care trends and issues across the lifespan. This course includes a 40-hour clinical project.

DNURS 803 Leadership and Health Policy
3 credits
This course is designed to identify the impact of leadership on organizational, professional, and governmental policies in nursing practice. It includes an overview of how health care changes affect the structure and cost of care in the United States at the local, state, and national levels. Leadership is fundamental to Doctor of Nursing (DNP) practice. This course will prepare students to analyze and develop practice processes and outcomes that improve quality outcomes, patient safety, and their implications. Teams and interprofessional collaboration will be examined to effect quality outcomes. Students will synthesize the impact of budget and finance on strategic planning and influence health policy makers to evaluate and improve health care delivery systems at a local, state, or national level. This course includes a 40-hour clinical project.

DNURS 804 Scientific Underpinnings of Advanced Nursing Practice
3 credits
The DNP student will explore the evolution and application of knowledge in nursing. This course will emphasize the acquisition of knowledge, the theoretical underpinnings of nursing and the transference of knowledge to the practice of nursing. To effect changes in nursing and health care of the individual, family and community, the joining of theory and practice are explored within the context of other scientific disciplines and clinical nursing practice.

DNURS 805 Epidemiology and the Role of the Advanced Practice Nurse
3 credits
This course explores the distribution and determinants of health-related states and events in populations, and the application of findings to the control of health problems. Identifying health care needs and trends based on epidemiological data in a specific population will be used to examine ways to ensure that health care needs are being met – and improved. Clinical doctorate nursing students will be given the knowledge necessary to identify – and effectively use – epidemiologic database systems and trends in health care data.

DNURS 806 Health Care Informatics
3 credits
This course focuses on the role that information technology has as a support of patient-centered care – from individual to population-focused care. Topics covered include electronic medical records [EMRs]; patient safety systems, tele-health modalities, from remote monitoring in hospital settings – such as intensive care units [ICUs] – to remote monitoring in patient homes; and web-based patient and professional education opportunities. Clinical doctorate nursing students will select, design, use, and evaluate a health information modality at the system level. Students will identify ethical issues in information management and the use of technology used to evaluate and research evidence-based issues.

DNURS 808 Evidence-Based Project/ Specialty Practicum Implementation
3 credits
Prerequisites: DNURS 801 and 804.
This clinical practicum implementation requires the student to be precepted by research or Doctorally prepared mentor in a practice specialty area of their choice for a total of 224 hours over the course of the semester. Concepts across the program of study, from all didactic and clinical experiences, will culminate in an evidence-based change project. Practice settings can be varied, and can include clinical, governmental, or educational settings. Students will disseminate their project in a poster presentation in the clinical and the educational arena.

DNURS 809 Evidence-Based Project/ Specialty Practicum Dissemination
2 credits
Prerequisites: DNURS 801, 804, and 808.
This clinical practicum dissemination requires the student to be precepted by research or Doctorally prepared mentor in a practice specialty area of their choice. Concepts across the program of study, from all didactic and clinical experiences, will culminate in an evidence-based change project. Practice settings cane be varied, and can include clinical, governmental, or educational settings. Students will disseminate their project in a poster presentation in the clinical and educational arena.

DNURS 817 Anesthesia Clinical Practicum I
1 Credit
Prerequisites: DNURS 830.
The clinical Nurse Anesthesia curriculum is designed to allow the nurse anesthetist student to integrate didactic learning into the clinical practice of anesthesia. Clinical Practicum 1 provides the foundation for clinical practice. Basic anesthesia skills are learned and practiced during an appropriate orientation to clinical practice that precedes this initial clinical experience.

DNURS 818 Anesthesia Clinical Practicum 2
2 Credits
Prerequisites: DNURS 817.
Clinical Practicum 2 builds on the skills learned and practiced in Clinical Practicum 1. It provides the nurse anesthetist student with the opportunity to improve anesthesia skills. Clinical Practicum 2 builds on the student's basic anesthesia knowledge and integration of evidence-based principles. The student will learn and demonstrate how to interact in a manner that assures compassionate and culturally appropriate care.

DNURS 819 Anesthesia Clinical Practicum 3
2 Credits
Prerequisites: DNURS 818.
Clinical Practicum 3 builds on the advanced skills learned in Clinical Practicum 2. It provides the nurse anesthetist student the opportunity to improve their basic anesthesia skills, and to demonstrate advanced skills. Clinical Practicum 3 builds on the student's anesthesia knowledge and comprehension. The student demonstrates the use of didactic knowledge learned in the classroom and skills learned in the clinical setting to meet the perioperative needs of a variety of patients. Students begin to take a more active role in the decision-making process specific to the anesthesia needs of the patient.

DNURS 820 Foundations of Research and Theoretical Frameworks in Nursing
3 Credits
This course examines nursing theories, and that role that theoretical models play in providing a basis for the scientific application of the nursing research and the practice. Emphasis is placed on the systematic examination of the research process and theory construction, including critical analysis of research studies and examination of the relationship between theory, research, and professional practice. This course provides graduate nursing students with the fundamental knowledge to design and conduct a research study utilizing a sound theoretical basis.

DNURS 825 Advanced Pharmacology for Anesthesia 1
3 Credits
Prerequisites: DNURS 861.
This course is the first in a two-course series presenting requisite knowledge for the effective clinical practice of anesthesia. It provides in-depth knowledge specific to anesthesia pharmacology to nurse anesthetist students. Course content includes the pharmacokinetics and pharmacodynamics of anesthetic agents, muscle relaxants, and local anesthetics. Emphasis is on building knowledge specific to the uptake and distribution of anesthetics, as well as the metabolism, excretion, and elimination of anesthetic drugs. Review of current trends in pharmacy related to anesthesia provide evidence-based learning opportunities.

DNURS 826 Role Theory and Professional Issues in Nursing
3 Credits
This course deals with the examination of theories underlying the construction and definition of roles in society, with emphasis on the acquisition and meaning of advanced practice nursing roles. Professional issues and advanced practice roles are examined for their interrelatedness within the health care system. Emphasis is on role development, leadership, and research, and how these provide the basis for planned change within the health care system and the nursing profession.

DNURS 827 Advanced Physiology/ Pathophysiology for Anesthesia 1
4 Credits
This course is the first in a three-course series for nurse anesthetist students. Course content presents a detailed, systematic investigation of the anatomy, physiology, and pathophysiology of the cardiopulmonary system. Emphasis is on the integration of this knowledge into planning, implementation, and evaluation of care strategies for patients requiring anesthesia. Differentiation of normal and abnormal findings and prioritizing patient specific needs provides the foundation for the development of evidenced based plan of care.

DNURS 828 Advanced Physiology/ Pathophysiology for Anesthesia 2
3 Credits
Prerequisites: DNURS 827.
This course is the second in a three-course series for nurse anesthetist students. This course will emphasize the acquisition of knowledge and the transference of knowledge into practice. Course content presents a detailed, systematic investigation of anatomy, physiology, and pathophysiology of the Endocrine and Renal Systems, including fluid, electrolyte, and acid-base physiology. Emphasis is on the integration of evidence-based principles into the planning, implementation, and evaluation of care strategies for patients requiring anesthesia.

DNURS 829 Advanced Physiology/ Pathophysiology for Anesthesia 3
2 Credits
Prerequisites: DNURS 828.
This course is the third in a three-course series for nurse anesthesia students. This course will emphasize the acquisition of knowledge and the transference of knowledge into practice. Course content presents a detailed, systematic investigation of the anatomy, physiology, and pathophysiology of the neuromuscular system. Emphasis is on the integration of evidence-based principles into the planning, implementation, and evaluation of care strategies for patients requiring anesthesia.

DNURS 830 Basic and Advanced Principles in Nurse Anesthesia 1
4 Credits Lab/Observation
The first course in nurse anesthesia combines classroom lectures, simulation training, and observation in the operating room. This basic course emphasizes the knowledge and skills of the nurse anesthetist in providing evidence-based care. Basic concepts of the role and responsibilities of nurse anesthetists are presented. Didactic principles are reinforced in a structured simulation experience including air way management, anesthetic gas machine overview and safety mechanisms, monitoring, positioning, fluid management and identification of potential mechanical and anesthesia complications.

DNURS 831 Professional Practice Issues in Nurse Anesthesia
3 Credits
The emphasis of this course is the professional practice issues specific to the nurse anesthetist. This course exposes the student registered nurse anesthetist to current areas of professional responsibility through a variety of lectures and guest speakers. A wide range of topics are discussed, including professional aspects of the advanced practice CRNA, the business of anesthesia, the current healthcare environment, healthcare politics, credentialing, quality, and regulation of practice. The course is designed to assist the student to conceptualize, analyze, and evaluate their professional role. This course will prepare students to analyze and develop practice processes and outcomes that improve quality outcomes, patient safety and their implications

DNURS 832 Basic and Advanced Principles in Nurse Anesthesia 2
4 credits Lab
Prerequisites: DNURS 830.
This course is the second in a two-course series which builds upon and intensifies to include the care of diverse populations. Identifying health care needs based upon specific populations will be used to examine ways to ensure that health care needs are being anticipated, met, and improved. In-depth content in both the classroom and simulation lab includes progressive, guided instruction in the evidence based clinical anesthesia management of patients undergoing obstetrical, orthopedic, trauma and urological surgery. Principles of nurse anesthesia care in a variety of settings explore the legal and ethical considerations of nurse anesthesia.

DNURS 835 Basic and Advanced Principles in Nurse Anesthesia 3
3 Credits
Prerequisites: DNURS 830.
This course is the third course in the series which builds upon and intensifies to include the care of pediatric and cardiovascular patients. Identifying health care needs based upon specific populations will be used to examine ways to ensure that health care needs are being anticipated, met, and improved. This course provides content to break down didactic information assess clinical situations and design evidence-based plans of care. Nurse anesthesia students are introduced to anesthesia specialists in a seminar format.

DNURS 836 Advanced Pharmacology for Anesthesia 2
3 Credits
Prerequisites: DNURS 825.
This course is the second in a two-course series for nurse anesthetist students presenting requisite knowledge for the effective clinical practice of anesthesia. Course content includes pharmacokinetics and pharmacodynamics of the accessory drugs for anesthesia practice. Emphasis is on drug affecting the autonomic system, the central nervous system, and the cardiovascular system. Fluid and electrolyte management, antibiotic prophylaxis, and pharmacology for pulmonary and endocrine systems are reviewed. Student registered nurse anesthetist demonstrate learned information in clinical practice.

DNURS 837 Anesthesia Clinical Practicum 4
2 Credits
Prerequisites: DNURS 819.
Clinical Practicum 4 builds on the advanced skills learned in Clinical Practicum 3. The nurse anesthesia student will be given the opportunity to experience more difficult cases and apply new learning. The student will be required to demonstrate higher levels of application and critical thinking in clinical practice.

DNURS 838 Anesthesia Clinical Practicum 5
2 Credits
Prerequisites: DNURS 837.
Clinical Practicum 5 builds on the advanced skills learned in Clinical Practicum 4. It provides the nurse anesthesia student with the opportunity to experience more difficult cases and apply new learning. The student will be required to demonstrate higher levels of application and critical thinking in clinical practice.

DNURS 839 Anesthesia Clinical Practicum 6
2 Credits
Prerequisites: DNURS 838.
Clinical Practicum 6 builds on the advanced skills learned across the anesthesia curriculum. Nurse anesthesia students are now expected to be as independent as possible in the practice of anesthesia.

DNURS 840 Basic and Advanced Principles in Nurse Anesthesia 4
3 Credits
Prerequisites: DNURS 835.
The fourth and final course in the series continues to build upon and intensifies to include the care of diverse populations. This course provides content specific to the application of didactic and evidence-based principles to clinical situations. Anesthesia specialties surveyed include otorhinolaryngologic, bariatrics, burns, ophthalmic, cancer, uncommon diseases, and pain management Identifying health care needs based upon specific populations will be used to examine ways to ensure that health care needs are being anticipated, met, and improved. Nurse anesthesia students are introduced to anesthesia specialists in a seminar format which promotes interdisciplinary collaboration.

DNURS 861 Chemistry and Physics for Anesthesia
3 Credits
This course emphasizes chemistry and physics and investigates basic physical principles as they relate to clinical nurse anesthesia practice. This course identifies mechanics, fluids, gases, electricity, electronics, and instruments as they relate to anesthesia. Students will be given the knowledge needed to identify and use principles of chemistry and physics to positively impact the practice of nurse anesthesia that improve quality outcomes and patient safety.

DNURS 890 Advanced Physical Assessment
3 Credits
This course is intended to expand nursing history and physical assessment skills including health history taking, physical, psychological, cognitive, and social assessment. Focus is given to the assessment skills for evaluating the adult with reference to various techniques and findings found in the younger and older populations. Application of anatomy, physiology, and pathophysiology to physical appraisal is emphasized.

Doctor of Nursing Practice (DNP)

Associate Dean: Dawn Coburn Joy, Ph.D., RN, CNE

INTRODUCTION

Upon completion of the program requirements, students are awarded the Doctor of Nursing Practice (DNP) degree. To comply with required educational changes as outlined by the *American Association of Colleges of Nursing* (AACN), the Villa Maria School of Nursing is offering the addition of courses that will meet identified core content and competencies as outlined by the AACN specific to the practice doctorate.

The program is offered as a "bridge program" or Master's add-on from the MSN to the DNP that is 23-26 credits in length. It can be completed in four to six part-time semesters.

Graduates will be prepared as leaders in their practice area. Course content will direct the DNP student at Gannon University to prepare, deliver and evaluate an evidence-based practice project in the clinical arena. This project will be an immersion experience and is not a research dissertation. Students may use their previous MSN level thesis work as a pilot study or starting point to develop their project.

OUTCOMES

At the conclusion of the course of study leading to the Doctor of Nursing Practice at Gannon University, the graduates will:

- be prepared in advanced nursing practice as culturally sensitive, competent, and safe practitioners and who deliver care and act as advocates for individuals, aggregates, and communities of varying diversity and socioeconomic levels.
- effectively use technology, large aggregate data bases, and information systems to identify, use, and create therapeutic nursing interventions that promote health and prevent disease.
- identify, analyze, and create evidence-based solutions to individual practice and organizational health care dilemmas.
- synthesize and utilize ethical, legal, political, and advocacy methodologies to positively impact health care practice and health care delivery systems.
- promote collaborative and multidisciplinary delivery of health care as members of teams and organizations across the health care practice arena.
- provide quality nursing leadership and serve as mentors to other nurses, from novice nurses to nurses in advanced practice roles.

NOTE: Course offerings in any graduate program nursing option are contingent on sufficient enrollment.

ADMISSION REQUIREMENTS

Applicants who hold a Master of Science in Nursing are eligible to apply for admission to the Doctor of Nursing Practice program of study. Applicants must:

- Submit an application for admission with the Gannon University Graduate Admissions office. Applicants will:
  - Provide official transcripts of all previous academic work.
  - Have a 3.5 out of 4.0 overall GPA in their Master's degree program.
  - Submit three letters of recommendation; one from an academic professional (faculty who knows the student's ability to do independent academic work), one from an employer, and one from a professional who can address the candidate's advanced practice ability.
  - A professional resume
  - A copy of a current Registered Nurse license and advanced practice license (where applicable)
  - Evidence of active certification and current CEUs
  - Course description of a Graduate level statistics course (if completed)
  - A synopsis or evidence of a thesis or evidence-based practice project completed at the Master's level
  - An essay (limited to 500 words) regarding the applicant's interest in obtaining a DNP
  - Complete a phone or onsite interview with VMSON leadership.
  - Provide information regarding clinical practice hours acquired for evaluation to meet the 1000 hour DNP clinical requirement

THE CURRICULUM PLAN

A three-credit graduate level statistics course must be completed prior to or concurrent with taking DNURS 801 Evidence based Practice/Theory. If the course is not taken at Gannon, a course description must be approved by the Nursing Director. Graduate students are assigned an academic advisor who will provide guidance and support throughout the DNP program.

REQUIRED COURSES FOR DNP PROGRAM OF STUDY

Fall Semester

DNURS 801	Evidence Based Practice/ Theory	3
DNURS 802	Transcultural Influences on Health Care (40 hour clinical project)	3

Spring Semester

DNURS 804	Scientific Underpinnings of APN*	3
DNURS 803	Leadership and Health Policy (40 hour clinical project) *	3

Summer Session

DNURS 806	Health Care Informatics	3
DNURS 808	Evidence Based Practice/Specialty Practicum Project Implementation	3

Fall Semester

DNURS 805	Epidemiology and the Role of the Clinical Nurse Doctorate	3
DNURS 809	Evidence Based Practice/Specialty Practicum Project Dissemination	2

* All students must complete a minimum of 304 clinical practice hours (40 + 40 + 224 hours = 304 hours); All post-BSN and post-MSN clinical certification hours will be evaluated for a total of 1000 post-BSN clinical hours
* DNURS 803 must be a prerequisite or co-requisite with DNURS 804.

COURSE DESCRIPTIONS

DNURS 801 Evidence-Based Practice/Theory
3 credits
Emphasis is on the use of evidence on the delivery of health care and the measurement of outcomes in advanced nursing practice. Methods to improve practice, identify and test interventions and health care delivery models, and evaluate health care outcomes will be explored. Content provides a synthesis of best research evidence with clinical expertise and client values to direct practice for the best health care outcomes.

DNURS 802 Transcultural Influences on Health Care
3 credits
This course emphasizes the impact of culture, belief systems, and societal norms on the delivery of health care for diverse populations. Diversity is studied in relation to roles, expectations, and social organization. Emphasized are the tools necessary to acquire the knowledge and skills to demonstrate culturally aware communication and cultural assessment which will identify strategies for enhancing health outcomes of ill and well patients, families, and communities. Transcultural nursing concepts, theories and models will be applied to the analysis of health disparities and health care trends and issues across the lifespan. This course includes a 40-hour clinical project.

DNURS 803 Leadership and Health Policy
3 credits
This course is designed to identify the impact of leadership on organizational, professional, and governmental policies in nursing practice. It includes an overview of how health care changes affect the structure and cost of care in the United States at the local, state, and national levels. Leadership is fundamental to Doctor of Nursing (DNP) practice. This course will prepare students to analyze and develop practice processes and outcomes that improve quality outcomes, patient safety, and their implications. Teams and interprofessional collaboration will be examined to effect quality outcomes. Students will synthesize the impact of budget and finance on strategic planning and influence health policy makers to evaluate and improve health care delivery systems at a local, state, or national level. This course includes a 40-hour clinical project.

DNURS 804 Scientific Underpinnings of Advanced Nursing Practice
3 credits
Prerequisite: DNURS 801
Prerequisite of Corequisite: DNURS 803
The DNP student will explore the evolution and application of knowledge in nursing. This course will emphasize the acquisition of knowledge, the theoretical underpinnings of nursing and the transference of knowledge to the practice of nursing. To effect changes in nursing and health care of the individual, family and community, the joining of theory and practice are explored within the context of other scientific disciplines and clinical nursing practice.

DNURS 805 Epidemiology and the Role of the Advanced Practice Nurse
3 credits
This course explores the distribution and determinants of health-related states and events in populations, and the application of findings to the control of health problems. Identifying health care needs and trends based on epidemiological data in a specific population will be used to examine ways to ensure that health care needs are being met – and improved. Clinical doctorate nursing students will be given the knowledge necessary to identify – and effectively use – epidemiologic database systems and trends in health care data.

DNURS 806 Health Care Informatics
3 credits
This course focuses on the role that information technology has as a support of patient-centered care – from individual to population-focused care. Topics covered include electronic medical records [EMRs]; patient safety systems, tele-health modalities, from remote monitoring in hospital settings – such as intensive care units [ICUs] – to remote monitoring in patient homes; and web based patient and professional education opportunities. Clinical doctorate nursing students will select, design, use, and evaluate a health information modality at the system level. Students will identify ethical issues in information management and the use of technology used to evaluate and research evidence-based issues.

DNURS 808 Evidence-Based Practice/Specialty Practicum Project Implementation
3 credits
Prerequisites: DNURS 801, 804 in the part-time sequence
This clinical practicum implementation requires the student to be precepted by a research or Doctorally prepared mentor in a practice specialty area of their choice for a total of 224 hours over the course of the semester. Concepts across the program of study, from all didactic and clinical experiences, will culminate in an evidence-based change project. Practice settings can be varied, and can include clinical, governmental, or educational settings. Students will disseminate their project in a poster presentation in the clinical and the educational arena.

DNURS 809 Evidence-Based Practice/Specialty Practicum Project Dissemination
2 credits
Prerequisites: DNURS 801, 804, 808 in the part-time sequence
This clinical practicum dissemination requires the student to be precepted by a research or Doctorally prepared mentor in a practice specialty area of their choice. Concepts across the program of study, from all didactic and clinical experiences, will culminate in an evidence-based change project. Practice settings cane be varied, and can include clinical, governmental, or educational settings. Students will disseminate their project in a poster presentation in the clinical and educational arena.

DNURS 810 Special Topics
1-6 credits
The designation of a course as a "Special Topic" enables faculty in the Villa Maria School of Nursing to offer seminars, courses, or additional clinical experiences. Requests for special topic courses can be initiated by DNP students or faculty to complete program requirements. The syllabus and course objectives will be negotiated between student and faculty on an individual basis to meet student needs.

Occupational Therapy

Program Director: Amy Brzuz, OTD, OTR/L

INTRODUCTION

The Occupational Therapy Program offers opportunities for in-depth study of, and clinical experiences with, clients of all ages who have limited capacity to perform to their expectations in their everyday lives or are at risk of developing a limiting condition. The goal of occupational therapy is to assist individuals to achieve their maximum level of independent living and quality of life through remediation of, adaptation to, or prevention of physical, cognitive, perceptual or mental health functional limitations. Occupational therapy utilizes the consultative process in addition to direct intervention and works with populations and systems as well as individuals.

MISSION

The Occupational Therapy Program engages students in teaching and learning to enable them to demonstrate excellence in all aspects of the evaluation and intervention. This process is grounded in the application of occupation, and the use of reasoning and creative problem solving. The program is designed to foster life-long learners who:

- adapt to ever-changing professional environments,
- contribute to the knowledge base of the profession,
- provide leadership in the profession and society,
- acknowledge the importance of holism in their own lives and in the lives of their clients,
- work collaboratively, respecting diversity within the global community, and
- value engagement and involvement within the community.

Gannon's Occupational Therapy program is reflective of and consistent with the University Mission in preparing our students to be global citizens by emphasizing a strong foundation in liberal studies and a dynamic program curriculum that promotes professionalism and experiential learning. Inspired by the Catholic Intellectual Tradition, students receive a value centered and ethically based approach to life and learning, that emphasizes faith, leadership, inclusiveness, and social responsibility.

Every occupational therapy faculty member is committed to excellence and continuous advancement in teaching, scholarship, and service. The faculty as a whole is committed to supporting University and professional commitments in these three areas to prompt and promote excellence in the Occupational Therapy program.

GOALS OF THE PROGRAM

The goals of the Occupational Therapy program reflect the missions of the university, college, and program. In essence, these are to educate self-directed students who, upon graduation, will become quality professionals, contribute to the body of knowledge of the profession and provide leadership for the profession and society. This will be accomplished through incorporation of the liberal studies component of the student's bachelor's degree into graduate, professional education in Occupational Therapy. Accordingly, the goals of the program are to:

- develop quality entry-level occupational therapists whose practice is guided by occupational science and clinical reasoning;
- create life-long learners who will contribute to the body of knowledge of the profession;
- foster student attitudes and professional behaviors consistent with the missions of the university, college and program;
- assist the student to develop the skills necessary to provide leadership roles in the profession and society;
- provide students with the skills and problem-solving abilities to adapt and respond proactively to a changing health care system and society;
- provide professional resources, services, leadership and scholarship to the profession and community;
- foster an academic community in which its members participate actively in the development of self and society.

PROGRAM OF STUDY

The post-baccalaureate program of study begins in the summer semester of the entering year with three required and foundational OT courses done in an online distance education format, with up to five required on-campus lab days for GOCCT 503 Occupational Analysis Lab. Full-time, on-campus graduate course work starts in the fall semester and continues for three (3) years, with the summer between the first and second years off. The summer and fall semesters of the third year are spent in full-time clinical internships, followed by a capstone semester in the spring. (See the Curriculum below.)

Upon completion of the program a Master of Science degree is awarded and graduates are eligible to sit for the national certification examination administered by the National Board of Certification in Occupational Therapy (NBCOT; www.nbcot.org). Individuals with certain types of criminal records (felonies) may be barred from practicing occupational therapy at the national or state level. Individuals with criminal records should contact NBCOT (http://www.nbcot.org) and the occupational therapy licensing board of the state where they would like to practice prior to applying for admission to any OT program. Both of these organizations will do early evaluations of the criminal record as a means of determining if the student would be allowed to practice occupational therapy.

Clinical Experiences (Fieldwork I and Fieldwork II)

Fieldwork I: Earlier clinical experiences, which include 40 hour weekly or week-long experiences in the clinic, are provided locally or within a reasonable proximity to the student's permanent residence. Each of three Fieldwork I experiences are a component of professional level course requirements for Psychosocial OT, Pediatric OT, and Physical Disability OT courses in the curriculum. The occupational therapy programs also offers international level 1 opportunities (GIFT Courses).

Fieldwork II: Clinical placements for the two 12-week full-time, clinical field work experiences are available throughout the United States, although most are located in Pennsylvania, New York and Ohio.

Thesis Requirements

Students are guided in their selection of a thesis topic and in the successful completion of the thesis experience. Students participate in a small group, original research project with a faculty mentor, which culminates in multiple presentations of their thesis.

ADMISSION REQUIREMENTS

The program is designed as a full-time course of study, although part-time study may be designed with the student in special circumstances and with the Program Chair's approval.

Students in the final year of completion of a bachelor's degree are accepted into the program with a minimum 3.0 out of a 4.0 scale grade point average in college courses. GRE's are not required. Transfer credit for prerequisite courses will be completed on an individual basis but all transfer courses must be completed at a "C" or higher level. Students may be accepted into the program contingent upon satisfactory completion of prerequisites at another university or may be accepted directly into the OT program if completing prerequisites at Gannon.

The following prerequisites must be completed before formal matriculation into the OT program:

- Intro to Psychology
- Psychopathology or Abnormal Psychology
- Intro to Sociology or a course in diversity
- Anatomy and Physiology I and II with lab (total of 8 credits)
- Developmental psychology or equivalent
- Physics (one semester survey or two semester full sequence)
- Statistics

*** Additional requirements for all students**

- Prior to matriculation in the program, students must complete their bachelor's degree and a minimum of 40 hours of observation in an OT setting; two different sites are preferred. After completing the hours the student must obtain signed verification from the facility that includes student's name, dates of observation, and number of hours completed.
- Deadline for application is January 15; applications received after this deadline will be reviewed if space is available in the program.
- Interested students must complete the application form required by OTCAS.
- Students must have demonstrated efficiency in using tools common to distance education. This might include a learning platform, special courses, or job experience. Students taking an online course at Gannon University will require internet access to utilize Blackboard for their coursework. Blackboard can be found in the http://my.gannon.edu portal. Blackboard supports the latest versions of Internet Explorer, Safari, Mozilla Firefox, and Chrome.

FINANCIAL AID

The program confers scholarships in the final two semesters of the program. Awards are based upon academic performance, professional behaviors, and leadership/career potential. Student worker positions may be available in the final semester of the program. Graduate students at Gannon may also apply as Resident Advisors in the undergraduate dorms to defray college expenses.

ACCREDITATION

The Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). Its graduates are therefore eligible to sit for the national certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy. After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the certification examination. For further information on accreditation, the address and telephone number for ACOTE are 6116 Executive Boulevard, Suite 200, North Bethesda, Maryland 20852-4929; (301) 652-6611 x2042.

CURRICULUM

OCCUPATIONAL THERAPY POST BS/BA SEQUENCE

First Year Summer	
GOCCT 501 Foundations of OT	3
GOCCT 503 Occupational Analysis Lab	1
GOCCT 561 Theoretical Foundations of OT	3
Total	7
First Year Fall	
GOCCT 505 Clinical Neuroscience	4
GOCCT 517 OT Intervention Psychosocial I	3
GOCCT 518 OT Intervention Psychosocial I Lab	1
GOCCT 542 Analysis of Human Movement	3
GOCCT 543 Analysis of Human Movement Lab	1
GOCCT 586 OT Medical Sciences	3
GOCCT 527 Fieldwork Seminar	1
Total	16

First Year Spring

GOCCT 511 Neurorehab Techniques	3
GOCCT 512 Neurorehab Techniques Lab	1
GOCCT 519 OT Intervention: Psychosocial II	4
GOCCT 520 OT Intervention: Psychosocial II Lab	1
GOCCT 551 The Research Process	3
Total	12

Second Year Fall

GOCCT 531 OT Intervention: Phys Disabilities I	3
GOCCT 532 OT Intervention: Phys Disabilities I Lab	1
GOCCT 537 OT Intervention: Pediatrics and Dev Disabilities I	4
GOCCT 538 OT Intervention: Pediatrics and Dev Disabilities I Lab	1
GOCCT 530 Community Based Intervention	3
GOCCT 650 Research Seminar	3
Total	15

Second Year Spring

GOCCT 533 OT Intervention: Physical Disabilities II	4
GOCCT 534 OT Intervention: Physical Disabilities II Lab	1
GOCCT 539 OT Intervention: Pediatrics and Dev Disabilities II	3
GOCCT 540 OT Intervention: Pediatrics and Dev Disabilities II Lab	1
GOCCT 630 Intervention Techniques for Gerontology	3
GOCCT 640 Clinical Reasoning Seminar I	3
GOCCT 750 Thesis I	1
Total	16

Third Year Summer/Fall

GOCCT 660 Field Work Experience II (A)	8
GOCCT 661 Field Work Experience II (B)	8
Total	16

Third Year Spring

GOCCT 620 Leadership and Management in OT	3
GOCCT 710 Emerging Models of Practice	3
GOCCT 727 Advanced Intervention: Theory and Techniques Lab	1
GOCCT 730 Professional Issues Seminar	3
GOCCT 720 The Occupational Lens	2
GOCCT 751 Thesis II	3
Total	15

Total credits: 97

COURSE DESCRIPTIONS

GOCCT 501 Foundations of Occupational Therapy
3 credits
Development of Occupational Therapy as a profession; concepts of occupational role acquisition and role dysfunction; use of human occupation as therapeutic intervention; exploration of domains of practice of OT; scopes of practice of health professionals; health and wellness; health care delivery systems; disability; professional behavior. Development of philosophy and theory in occupational therapy; examination of the conceptual models which have shaped occupational therapy since its inception, analysis of current theories, models and frames of reference which shape practice. In-depth analysis of the concepts underlying occupational behavior, occupational science and clinical reasoning.

GOCCT 503 Occupational Analysis Lab
1 credit
This lab course will expand on the Occupational Therapy Practice Framework and the concepts contained within this document. This course provides students with hands-on experience in analysis of selected tasks of work, self-care and play/leisure with special emphasis on analysis of arts and crafts as well as the process of adapting and grading.

GOCCT 505 Clinical Neuroscience
4 credits
Prerequisite: GOCCT 526 or Permission of Instructor
An in-depth study of the structure and function of the central nervous system relative to human behavior. Peripheral structures involved in sensorimotor function will be included. Clinical conditions and case studies, including their influence on occupational performance components and areas, will be utilized.

GOCCT 511 Neurorehabilitation Techniques
3 credits
Prerequisites: GOCCT 505
Corequisite: GOCCT 512
Analysis of various theoretical approaches to the treatment of central nervous system motor dysfunction throughout the life span. Topics will include neurodevelopmental, sensorimotor, and kinesiological approaches to motor dysfunction including relevant research findings. Current research regarding the efficacy of the various theoretical approaches will be explored.

GOCCT 512 Neurorehabilitation Techniques Lab
1 credit
Prerequisites: GOCCT 505
Corequisite: GOCCT 511
Laboratory will provide guided experiences in neurorehabilitation handling techniques, application to human occupations, clinical reasoning, case analyses and selected clinical experiences. Current research regarding the efficacy of the various theoretical approaches will be explored. Lab fee

GOCCT 517 Occupational Therapy Intervention: Psychosocial I
3 credits
Co-requisite: GOCCT518
This is an integrated theory and practice course examining occupational therapy models for psychosocial treatment approaches based on the current research body of knowledge. Development of interpersonal skills, group leadership skills, and the therapeutic use of self are introduced. Areas explored include techniques for prevention, understanding of the process of group dynamics, remediation of role dysfunction within various cultures, populations, and diagnosis groups. OT Intervention: Psychosocial I is the first of two courses dealing with psychosocial dysfunction.

GOCCT 518 Occupational Therapy Intervention: Psychosocial I Lab
1 credit
Co-requisites: GOCCT 517
This lab course provides students with hands-on experience in examining occupational therapy models for psychosocial treatment approaches based on the current research body of knowledge. Development of interpersonal skills, group leadership skills, and the therapeutic use of self are fostered. Areas explored include techniques for prevention, understanding of the process of group dynamics, remediation of role dysfunction within various cultures, populations, and diagnosis groups. Lab fee

GOCCT 519 OT Intervention: Psychosocial II
3 credits
Prerequisites: GOCCT 517; GOCCT 518
Co-requisite: GOCCT 520
This course integrates OT theory and practice and the use of self in a therapeutic manner (the intentional relationship) in relation to occupational therapy evaluations, interventions, and clinical fieldwork experiences. The basis for this course is mental health throughout the lifespan and this represents the course framework. Mental health diagnosis, signs, symptoms, medications, and behaviors will be presented. Fieldwork placements for this course will provide a dynamic and total experience of academic learning placed into clinical action with clients who experience mental health issues either primarily or secondarily in the community. This course includes traditional lecture, student presentations, and community-based fieldwork placements throughout the semester.

GOCCT 520 OT Intervention: Psychosocial II Lab
1 credit
Prerequisites: GOCCT 517; GOCCT 518
Co-requisite: GOCCT 519
This lab course integrates OT theory and practice and the use of self in a therapeutic manner (the intentional relationship) in relation to occupational therapy evaluations, interventions, and clinical fieldwork experiences. Course labs provide hands-on activities to strengthen concepts learned in lecture and provide a format for peer learning of evaluations, screens, and interventions. Lab fee

GOCCT 527 Fieldwork Seminar
1 credit
Prerequisites: OCCT 461/GOCCT 561
This seminar is designed to facilitate the student's personal and professional growth in preparation for Level I and Level II fieldwork experiences. Throughout the course of this seminar, students will prepare to effectively incorporate the tenets of professional development to successfully transition to the clinical setting. Content will address the following: the fieldwork process, clinical learning styles, the fieldwork onboarding requirement process, the student/fieldwork educator relationship, professional appearance, professional communication and professional development, exploration of the various areas of occupational therapy practice, and fieldwork evaluations.

GOCCT 530 Community-Based Intervention
3 credits
Prerequisite: GOCCT 519; GOCCT 520;
Corequisite: GOCCT 531; GOCCT 532; GOCCT 537; GOCCT 538
Therapeutic intervention with concentration on community-based practice and populations; special emphasis on the needs of the elderly; health/wellness programs; community centers; homeless populations; and special considerations in home health.

GOCCT 531 OT Intervention: Physical Disabilities I
3 credits
Prerequisites: GOCCT 586; GOCCT 511; GOCCT 512; GOCCT 519; GOCCT 520
Co-requisites: GOCCT 532
This course examines the Occupational Therapy evaluation and treatment planning process as it relates to individuals with physical disabilities. Students will acquire information regarding evaluation of all areas of the Occupational Therapy domain: occupation; client factors; performance skills; performance patterns; and contexts and environments. Students will also gain knowledge of intervention planning, documentation, and specific intervention practice settings, as they relate to individuals with physical disabilities.

GOCCT 532 OT Intervention: Physical Disabilities I Lab
1 credit
Prerequisites: GOCCT 586; GOCCT 511; GOCCT 512; GOCCT 519; GOCCT 520
Co-requisites: GOCCT 531
This lab course builds upon the information acquired in OT Intervention: Physical Disabilities I Lecture. Students will gain hands-on experiences related to evaluations, intervention planning, documentation, and specific intervention practice settings, as they relate to individuals with physical disabilities. Lab fee

GOCCT 533 OT Intervention: Physical Disabilities II
4 credits
Prerequisites: GOCCT 531; GOCCT 532
Co-requisite: GOCCT 534

This course explores the analysis and adaptation of the human and non-human environments in response to role dysfunction, as well as architectural barriers, orthotics, prosthetics, wheelchair prescription and management, adaptive equipment and assistive technology. OT interventions for specific adult physical disabilities including orthopedic, neurological and general medical conditions are presented. Prevention and treatment interventions are explored as well as the psychosocial aspects of physical dysfunction and application of clinical reasoning through case studies and review of relevant research. Level I fieldwork in an adult Physical Disabilities setting included.

GOCCT 534 OT Intervention: Physical Disabilities II Lab
1 credit
Prerequisites: GOCCT 531; GOCCT 532
Co-requisite: GOCCT 533
This lab course builds upon the information acquired in OT Intervention: Physical Disabilities II Lecture. Students design and implement OT interventions for specific adult physical disabilities including orthopedic, neurological and general medical conditions. Prevention and treatment interventions are explored as students gain hands-on experience in the analysis and adaptation of the human and non-human environments in response to role dysfunction, as well as architectural barriers, orthotics, prosthetics, wheelchair prescription and management, adaptive equipment and assistive technology. Lab fee

GOCCT 537 OT Intervention: Pediatrics and Developmental Disabilities I
4 credits
Prerequisites: GOCCT 586; GOCCT 511; GOCCT 512
Co-requisites: GOCCT 531; GOCCT 532; GOCCT 538
This course involves atypical development resulting in problems in role performance with interventions to address dysfunction in children. Role acquisition, competence, adaptation, and dysfunction from birth through adolescence in the areas of sensory, motor, perceptual, cognitive, and play will be addressed. Students will analyze appropriate use of specific assessments and treatment techniques from a range of theoretical frames of reference.

GOCCT 538 OT Intervention: Pediatrics and Developmental Disabilities I Lab
1 credit
Prerequisites: GOCCT 586; GOCCT 511; GOCCT 512
Co-requisites: GOCCT 531; GOCCT 532; GOCCT 537
This course builds on information acquired in OT Intervention: Pediatrics and Developmental Disabilities I Lecture. Through hands on learning students analyze and utilize appropriate and specific assessments and treatment techniques from a range of theoretical frames of reference with guided practice along with clinical reasoning through case studies and active lab learning activities. The use of assistive technology will also be incorporated. Lab fee

GOCCT 539 OT Intervention: Pediatrics and Developmental Disabilities II
3 credits
Prerequisites: GOCCT 537; GOCCT 538
Co-requisites: GOCCT 540; GOCCT 533; GOCCT 534
This course is a continuation in knowledge acquisition of pediatrics and developmental disabilities building off of GOCCT 537 and 538. Students will learn how to provide pediatric O.T. intervention in a variety of settings and models, including educational, early intervention and medical rehab. Further learning surrounding child and adolescent development and specific treatment techniques from a range of theoretical frames of references will be included.

GOCCT 540 OT Intervention: Pediatrics and Developmental Disabilities II Lab
1 credit
Prerequisites: GOCCT 537; GOCCT 538
Co-requisites: GOCCT 539; GOCCT 533; GOCCT 534
This course provides students with the opportunity to apply and practice hands on application of the knowledge acquisition of pediatrics and developmental disabilities building off of GOCCT 537 and 538 and GOCCT 539 lecture. Students will practice assessment strategies, various treatment intervention and discharge planning related to a variety of settings and models, including educational, early intervention and medical rehab. Active learning lab activities including pediatric hand splinting, sensory based interventions and assistive technology/wheelchair procurement will be addressed. Level I Fieldwork in a pediatric setting will be included. Lab fee

GOCCT 542 Analysis of Human Movement
3 credits
Prerequisites: PHYS 101, BIOL 108/109, BIOL 110/111, GOCCT 503
Co-requisite: GOCCT 543
Analysis of movement from a musculoskeletal orientation with focus on motor, sensory and motor learning components of human movement and their impact on occupations such as work, self-care, and play/leisure. Clinical examples will be provided to connect lecture to real-life application. This course will also discuss the influence of neurological, biomechanical, and human/non-human environments on daily occupations.

GOCCT 543 Analysis of Human Movement Lab
1 credit
Prerequisites: PHYS 101, BIOL 108/109, BIOL 110/111, GOCCT 503
Co-requisite: GOCCT 542
This course builds upon knowledge acquired in Analysis of Human Movement lecture, providing students with hands-on experiences regarding analysis of movement from a musculoskeletal orientation with focus on motor, sensory and motor learning and the impact on occupations such as work, self-care, and play/leisure.

GOCCT 551 The Research Process
3 credits
Using a comprehensive approach, this course is designed to stimulate student interest in the research process, theory development, and translations of findings to practice in health sciences. Students learn the components, principles and methods of scientific research to become discerning consumers of research.

GOCCT 561 Theoretical Foundations of Occupational Therapy
3 credits
Development of philosophy and theory in occupational therapy; examination of the conceptual models which have shaped occupational therapy since its inception, analysis of current theories, models and frames of reference which shape practice. In-depth analysis of the concepts underlying occupational behavior, occupational science and clinical reasoning.

GOCCT 586 Occupational Therapy Medical Sciences
3 credits
Signs, symptoms, medical management and pharmacological management of general medical, neurological, orthopedic and psychiatric conditions relevant to occupational therapy intervention.

GOCCT 590 Special Topics
1-3 credits
Prerequisite: Permission of Instructor
A course designed to provide in-depth study of a specific topic; objectives are determined on a course by course basis relative to the expertise of the faculty, needs of the students or relevance to a changing professional environment.

GOCCT 599 Independent Study
1-3 credits, Fall, Spring, Summer
An independent study whose objectives are determined collaboratively between student and instructor; designed to enrich a student's depth of study in a specific area.

GOCCT 620 Leadership and Management in OT
3 credits
Supervision and management theory and techniques with research review and application; role delineation; COTA and OTR collaborative intervention; quality assurance; program development; financial management; management methods in current healthcare systems and alternative work settings including funding resources; and developing independent small businesses in alternative settings.

GOCCT 630 Intervention Techniques for Gerontology
3 credits
Prerequisites: GOCCT 519; GOCCT 520; GOCCT 531; GOCCT 532
This course will explore various evidence-based strategies for improving health and functional independence of older adults. Students will be introduced to the various age related changes that occur in the cardiovascular, pulmonary, musculoskeletal, neuromuscular, and information processing systems. Course content will be delivered primarily through lecture, discussions, and article reviews. Case studies and interactive clinical activities will allow students the opportunity to design and implement an occupational therapy screening, evaluation, plan of care, and treatment for individuals with a variety of diagnoses commonly encountered in the aging populations.

GOCCT 640 Clinical Reasoning Seminar
3 credits
Prerequisite: GOCCT 519; GOCCT 520; GOCCT 531; GOCCT 532; GOCCT 537; GOCCT 538
The Liberal Studies senior capstone is the culminating experience of the Core curriculum and therefore requires students to integrate knowledge and skills from their major study areas, Liberal Studies courses, and co-curricular experiences. The course emphasizes cultural competence, leadership, ethical reasoning, Catholic social teaching, and LIFECORE. Additionally, the OT capstone covers the analysis of therapeutic intervention as an interpretive process. Application of procedural, interactive, conditional and narrative reasoning to therapeutic intervention through selected case analysis across disabilities and the life span.

GOCCT 650 Research Seminar
3 credits
Prerequisite: GOCCT 550 or GOCCT 552
This course involves the systematic writing of the research proposal and application of the research process and methodologies as they apply to the field of occupational therapy. Focus is on the methods of research design, with critical analysis of its components including collection, analysis, and interpretation of data. Synthesizing the relationships of the problem, methodology, hypothesis, and data analysis will be pivotal in the course. This course will culminate in the production of an approved proposal, which will be the basis of the student's completed thesis.

GOCCT 660/661 Fieldwork Experience II (A) and II (B)
8/8 credits
Prerequisite: Satisfactory completion of all prior course requirements, permission of faculty
This course involves six months full-time clinical experience in two different occupational therapy settings and supervised practice of therapeutic assessment and intervention techniques. Students will gain experience in a wide variety of clinical conditions and age ranges.

GOCCT 710 Emerging Models of Practice
3 credits
This course will examine emerging models of practice in the field. These will vary, based upon current Occupational Therapy theory, practice and service delivery models. In-depth exploration and understanding of current healthcare policies; social, demographic, and political issues driving the healthcare system; influences in delivery of services in OT. Informatics will be utilized as primary sources. Participants will examine new methods and settings in

which to provide OT intervention and apply these in a local agency or organization. Participants will also evaluate the effectiveness of these services and modify them as needed.

GOCCT 720 The Occupational Lens
2 credits
Prerequisite: GOCCT 660; GOCCT 661
The course explores occupational science and humans as occupational beings, and promotes discussion related to occupational deprivation and its relationship to occupational participation, justice, advocacy and the benefits of engagement in occupation. Students analyze occupation as a life organizer and develop and utilize observational skills, and problem solving approaches to view therapy from an occupational lens.

GOCCT 727 Advanced Intervention: Theory and Techniques Lab
1 credit
Prerequisites: GOCCT 660; GOCCT 661
This lab course introduces students to advanced theories and techniques used in occupational therapy practice. Emphasis is on hands-on application of advanced therapeutic intervention techniques and theories across age ranges, analysis, and adaptation of the human and non-human environments in response to role dysfunction; advanced modalities, refined handling techniques, advanced hand treatment, assistive technology application, and complementary and alternative therapies.

GOCCT 730 Professional Issues Seminar
3 credits
Prerequisite: GOCCT 660; GOCCT 661
Co-requisite: GOCCT 727
Critical analysis of current professional issues will be examined in this course. Topics will include, but not be limited to: healthcare delivery systems, professional boundaries, regulatory agencies, specialization, validation of theory; analysis of current social, political, cultural and economic change; continuing professional development; contributions to the profession and society.

GOCCT 750/751 Thesis I and II
1/3 credits
Prerequisite: GOCCT 650, approval of the thesis director
This sequence builds on GOCCT 650 by further developing and complementing the group research proposal. Discussion leading to systematic investigation of a research problem including gathering and analyzing the data, synthesizing and discussing the information collected, and summarizing the conclusions.

Post Professional Occupational Therapy Doctorate (PPOTD) Degree

Program Director: Michele Karnes, Ed.D., M.S., OTR

INTRODUCTION

The post-professional OTD curriculum is designed to prepare practicing occupational therapists to become advanced practitioners capable of serving as evidence-based leaders. The capstone component is an integral part of the program. It is designed to develop occupational therapists with advanced knowledge/skills in one of the following eight areas: clinical practice, research skills, administration, leadership, program and policy development, advocacy, education, or theory development.

With a keen understanding of the responsibilities of the practicing occupational therapist, this mission is accomplished by entering a two-year, part-time online program. It combines web-based instruction with a virtual presentation of the final capstone project to internal and external audiences. Our program is unique in that post-professional OTD students develop a strong cohort model that is helpful to their academic, professional, and personal growth.

MISSION

The mission of the post-professional Occupational Therapy Doctorate (ppOTD) program is to enable occupational therapists in any practice area or other position in health, education, community practice or other arenas to develop roles and skills beyond that of the therapist-clinician; to educate them to become practitioner-scholars who can translate knowledge (including cross-disciplinary theories and research) into practice and who are capable of serving as agents of change in new and expanded arenas.

APPLICATION PROCESS

The Office of Graduate Admissions and the Occupational Therapy Doctorate Department receives and reviews applications for the post-professional OTD program on a monthly basis. The electronic application can be located at www.apply.gannon.edu. After completion of the application, candidates are required to submit supplemental materials to the Office of Graduate Admissions. This includes, but is not limited to, the following information: academic transcripts, OT licensure, AOTA national and state membership, curriculum vitae/resume, and references.

ADMISSION REQUIREMENTS

Acceptance requirements into the Post-Professional Occupational Therapy Doctorate program will be based on the following:

- Completed master's degree
- Master's degree in Occupational Therapy (Bachelor's degree with extensive OT practice background will be considered)
- Minimum graduate GPA of 3.0 on a 4.0 scale
- OT license (in state of practice)
- AOTA and state OT organization membership

Application Procedures for the Post-Professional Occupational Therapy Doctorate Program:

- Submit online graduate application (apply.gannon.edu) and materials:
- Official transcript from all prior institutions
- One letter of recommendation
- Copy of OT license
- Curriculum vitae or professional resume
- Personal statement of professional and educational goals

STUDENT SUCCESS ONLINE

Gannon's Online Engagement Coordinator facilitates our online new student orientations, implements strategies to ensure that online students are active in their online courses, and provides general online student support through a variety of high-touch methods to engage students and support student retention efforts.

Gannon online students can reach out to our Office of Distance Education with general questions about online learning or how to remotely access Gannon's comprehensive student services.

CURRICULUM

The post-professional Occupational Therapy Doctorate is a doctoral degree which is awarded upon the successful completion of the following 34 credits:

Summer 1 – Total credits		**6**
PPOTD 900	Applied Research in Clinical Practice	3
PPOTD 902	Advanced Occupations	3
Fall 1 – Total credits		**5**
PPOTD 911	OT in Community and Wellness	2
PPOTD 915	Capstone Development	3
Spring 1 – Total credits		**6**
PPOTD 920	Expanded Models of Practice in OT	3
PPOTD 925	Capstone Project Proposal	3
Summer 2 – Total credits		**5**
PPOTD 930	Advanced Leadership and Ethics	2
PPOTD 935	Reasoning and Evidenced-Based Practice	3
Fall 2 – Total credits		**6**
PPOTD 940	Analysis of Policy and Change in OT	3
PPOTD 945	Teaching in Practice and Community	3
Spring 2 – Total credits		**6**
PPOTD 950	Entrepreneurship for the OT Professional	3
PPOTD 960	Capstone Project	3

Total credits: 34

COURSE DESCRIPTIONS

PPOTD 900 Applied Research in Clinical Practice
3 Credits
Prerequisites: None
This course provides an overview of research design from the perspective of the hierarchy of levels of evidence. Students will examine common designs of studies from lowest to highest levels of evidence in terms of purpose of study, question formulation, methodological features and significance of findings for application in practice. Using critical analysis skills, students will critique recent literature related to a topic of interest. Students will learn about the capstone project process and begin to develop an area of inquiry.

PPOTD 902 Advanced Occupations
3 Credits
Prerequisites: None
This is a course in the study of occupational performance analysis. Through various learning activities, students develop and communicate mechanisms to infuse a lifelong learning model to professional practice. This course will also examine the role of occupation in enhancing the health of populations through health promotion, health education and prevention of illness.

PPOTD 911 OT in Community Health and Wellness
2 Credits
Prerequisites: None
Students will explore applications of occupational therapy practice and practitioner skills in various community settings, roles, and programs. The course includes examination of health and wellness interventions within community-based practice and with varying populations. Using documents from the World Health Organization, Healthy People, various community-oriented models and theories, and the Occupational Therapy Practice Framework, students will engage in program planning and development as well as the evaluation process. Community partner identification, needs assessment, and sustainable program development will prepare students for various roles in community practice. The student will work to design a community-based program with a specific population in mind.

PPOTD 915 Capstone Project Development
3 Credits
This course introduces the student to the Capstone Project and process. Through engagement with faculty, Capstone Advisor, and mentors, the student will begin the initial steps of their capstone project. Exploration of evidence-based literature and other materials will assist the student in identifying a topic area for further examination. Using their critical appraisal skills, students will select and analyze literature that supports their capstone project idea. Students will also begin to document their doctoral journey in journal format. In preparation for completion of the OTD, students will begin to develop a professional portfolio that illustrates their professional accomplishments.

PPOTD 920 Expanded Models of Practice for OT
3 Credits
Students will examine current theories, frameworks, and practice and service delivery models that support growing areas of practice as well as new and emerging models of practice in the field of OT. Students will analyze the current topics related to changes to systems. The course will provide an in-depth analysis of current healthcare policies, regulation, social, political and demographic issues driving the healthcare system and their impact on how OT services are delivered. Technology and technologic advances and their role on emerging practice areas and expanded OT services will be discussed. Students will examine new methods and settings in which they may provide OT interventions. Students will learn about methods of program and service evaluation to justify and enhance the effectiveness of these services.

PPOTD 925 Capstone Project Proposal
3 Credits
Prerequisites: PPOTD 915
This course builds on the Capstone Development course as students begin their Capstone Project proposal through development of a literature base that supports the project, selection of a theory, model or conceptual framework, and development of the procedures necessary for carrying out their project. Students will explore various research designs, steps for data analysis, and be prepared to explain the purpose, rationale, and usefulness of their intended project to audiences both internal and external to the profession of OT. Students will continue to document their ppOTD and capstone journey as well as add to their professional portfolio.

PPOTD 930 Advanced Leadership and Ethics
2 Credits
Prerequisites: None
This course will examine leadership roles, practices and ethical responsibilities as they relate to diverse organizational settings. Evolving leadership theories and styles will be explored as well as ethical dilemmas. Students will identify strategies for improving personal and professional responsive leadership efforts after analyzing their own leadership strengths. Self-reflection, self-discovery, integrity, credibility as well as other leadership concepts and themes will influence this course.

PPOTD 935 Reasoning and Evidence-Based Practice
3 Credits
Prerequisites: PPOTD 925
This course is designed to further develop essential skills for conducting evidence-based practice. Students will explore readings from a variety of peer-reviewed journals in order to expand their awareness of literature that may provide valuable evidence for occupational therapy practice. The course will focus on appraising the internal, external, and statistical validity of evidence in relation to client outcomes. Further, students will analyze practice changes based on data related to clinical outcomes. The course proceeds to examine data analysis methods for a variety of quantitative, qualitative, and mixed methods in preparation for the final steps of the Capstone Project and future clinical research.

PPOTD 940 Analysis of Policy and Change in OT
3 Credits
Prerequisite: None
This course provides students with an introduction to health care change and examination of policies related to occupational therapy in the United States. Students will review the history of disability policy, and examine social, medical and political models and their influence on the delivery of health care and occupational therapy practice. An understanding of political process related to health care and major players in policy development will be explored along with the use of advocacy on micro and macro levels. Critical analysis of the use and impact of clinical outcome measures in occupational therapy and their effect on policy making will be covered.

PPOTD 945 Teaching in Practice and Community
3 Credits
Prerequisites: None
This course will examine the foundations of adult learning as well as their application in educating the public and addressing health literacy. This course identifies the advanced practitioner's role in various practice settings and the impact of ethical, political, legal, socio-cultural, and economic factors affecting programmatic goals. This course will explore personal teaching and learning styles and Boyer's Scholarship of Teaching.

PPOTD 950 Entrepreneurship for the OT Professional
3 Credits
Prerequisites: None
This course provides the OT practitioner with advanced knowledge in occupational therapy service delivery. From a management standpoint, students will analyze and assess various topics that will enable them to expand an area of current practice or to plan, develop, assess, fund, and market a new program/service/business. Regulations, policies, legal and ethical issues, funding, and other key aspects of successful program planning, delivery, and sustainability will be explored.

PPOTD 960 Capstone Project
3 Credits
Prerequisites: PPOTD 915 and 925
During this course students complete a final project that demonstrates the synthesis of occupational therapy theory, evidence-based practice principles and advanced knowledge in a practice area. Students demonstrate skills of self-direction, self-sufficiency, independence and professionalism expected of therapists prepared at the doctoral level. The final component of the course requires the student to complete a professional written report and oral presentation.

Organizational Learning and Leadership

Program Director: Bill Hallock, Ed. D.

INTRODUCTION

The Doctor of Philosophy in Organizational Learning and Leadership is an online interdisciplinary program devoted to theory and research in the areas of leadership and organizational studies. As such, the program prepares students to identify, analyze, and affect myriad issues underlying organizational processes and the dynamics of leadership. Program participants are provided with the conceptual and analytic means necessary to work effectively in a diverse range of social organizations spanning the corporate, non-profit, entrepreneurial, education, higher education, health care, religious and civic communities.

The Ph.D. is an academically rigorous program designed to accommodate the schedules of full-time working professionals. Courses are online via video software, with a face to face option for local students. Students progress as a cohort through a prescribed sequence of courses that includes summer instruction. The program utilizes a combination of classroom seminars and the possibility of independent study to integrate intellectual content with students' professional experiences and individual aspirations. Students and faculty share responsibility for providing contributions that enhance the quality of the learning environment for everyone.

Curricular requirements for the Organizational Learning and Leadership Program includes three components: 1) Multidisciplinary Theory and Research Core, 2) Individualized Foundations and 3) Doctoral Dissertation. The Multidisciplinary Theory and Research Core (42 credits) consists of coursework covering theory, research and practice pertaining to leadership and organizational studies supported by a sequence of courses devoted to social research methods and statistics. The Individualized Foundations (18 credits) component is a combination of transfer credits, elective courses and/or independent study germane to leadership, learning, and social organizations that is tailored to a student's professional orientation and aspirations. The Doctoral Dissertation (6 credits) consists of a supervised research project carried out under a faculty advisor after completing core degree requirements.

Course work contained in the Multidisciplinary Theory and Research Core is typically completed over a three year period of continuous enrollment, taking two courses in each of the Fall and Spring semesters and one on-campus (residency requirement on the Gannon-Erie campus) course during the summer (see typical course

sequence outlined below). Core courses must be completed before commencing Doctoral Dissertation credits. Courses satisfying the Individualized Foundations may be completed prior to, or concurrent with, other required coursework.

DEGREE OFFERED

The Organizational Learning and Leadership program offers a Doctor of Philosophy Degree (Ph.D.) It combines a broad examination of theory and research with mastery of the tools to create new knowledge, engendering competence for application and practice in a wide variety of academic and professional roles and settings.

PHILOSOPHY

The Doctor of Philosophy in Organizational Learning and Leadership is an interdisciplinary program devoted to the academic exploration of theory, research and practice pertaining to social organizations and leadership. The program is designed to prepare graduates who can effectively analyze organizational and leadership processes, conduct research, address challenges and enhance effectiveness in formal and informal organizations, while contributing to scholarship in leadership and organizational studies

Among the goals embraced by the graduate programs of Gannon University is the preparation of students for leadership, scholarship, and service in contexts of an increasingly global environment. These goals provide foundation for the objectives of this program which address the need for academically prepared individuals, serving in multiple capacities as members or leaders of organizations, to negotiate persistent challenges and continuous change. Every student in the Organizational Learning and Leadership Program is challenged to acquire capacity for effecting adaptive change and developing leadership capacity within themselves and the organizations in which they participate.

OBJECTIVES

- Develop the knowledge and analytic capacity to lead an organization in adapting, evolving, and learning in an ever-changing environment. *(leadership)*
- Provide students with a breadth of knowledge to facilitate examination of issues and opportunities from diverse systemic and social psychological perspectives. *(analytic perspective)*
- Develop capacity to identify creative, innovative responses to issues and opportunities in professional and organizational settings. *(innovation/change)*
- Facilitate development of advanced analytic and problem solving capacities grounded in sound research. *(research and analysis)*

TECHNOLOGY

Students will be taught primarily online via Zoom video technology. There is a live classroom setting for local students and this enhances the online delivery experience for students not in the Erie area. Experiential and project-based learning activities are integrated throughout the curriculum. Some courses include an element of independent study involving the integration or application of material learned in the classroom or under individual faculty consultation. Coursework in quantitative analysis includes instruction in the use of the Stata statistical software package.

ADMISSIONS REQUIREMENTS

Applicants must hold a master's or other post-baccalaureate professional graduate level degree from a regionally-accredited institution of higher education. Applicants should have a minimum graduate GPA of 3.5 on a 4.0 scale, and at least two years of post-baccalaureate work experience, preferably in a leadership capacity. Admission is based on a review of a total package with careful attention paid to the fit between the needs and aspirations of the student, and the learning objectives of the program.

Each applicant must submit the following information:

- A completed application providing demographic, employment, and academic information
- Three letters of recommendation conforming to the format provided in the application package
- Transcripts of all previous college work
- A resume delineating the scope, responsibilities, and functions of all positions held within the past five years
- A Statement of Purpose (limited to 500 words) that summarizes the perceived value of the OLL doctoral program for the applicant's personal and professional growth.

Applicants for whom English is not their first language may be required to submit scores from the Test of English as a Foreign Language and Test of Written English along with a financial declaration and supporting documentation.

Prospective students are encouraged to contact the Program Director early in the application process to discuss alignment of educational aspirations with programmatic goals and to address any questions regarding admissions requirements: Bill Hallock, Ed.D. (814) 871-7136 email: hallock002@gannon.edu.

DISSERTATION

The doctoral dissertation is the capstone element of the Ph.D. The doctoral dissertation is an original piece of research, conducted under the supervision of a faculty advisor, on a topic of intellectual interest to the student that offers a meaningful contribution to the existing literature. The format of the dissertation may be pure or applied research, which will be decided by the student and dissertation advisor with final approval given by the dissertation advisor. Work on the dissertation begins following completion of all coursework in the Multidisciplinary Theory and Research Core. The Core course sequence is designed to prepare students for working with a faculty advisor to identify and articulate a coherent research proposal. Each student will select a member of the OLL faculty to serve as

Chair of their Dissertation Committee. This faculty member will provide guidance in the development of a viable research question, an effective plan of inquiry and analysis, articulation of findings, and interpretation of results. Both the research proposal and final dissertation must be defended before a three member committee of qualified faculty selected in consultation with the faculty advisor, and carried out in compliance with the Institutional Review Board, concerning the ethical treatment of research participants. Dissertations are to be carried out in conformity with the most recent version of the Dissertation Guidelines for Doctoral Candidates and Style and Form Manual maintained and disseminated by the Program Director. While working on the dissertation, students are required to register for at least one (1) GOLL 899 Dissertation credit each semester until the dissertation is completed (see Continuous Enrollment Policy below).

STATUTE OF LIMITATIONS

Gannon University's policy for doctoral level study is that all students must complete their coursework and dissertation within seven (7) years of matriculation in a program. Students enrolled in the Organizational Learning and Leadership Program will be expected to meet this requirement following commencement of coursework in the multidisciplinary theory and research core. (i.e., when cohort coursework begins).

CONTINUOUS ENROLLMENT POLICY

A student admitted to the doctoral program must register each fall and spring semester for a minimum of 3 graduate credits from original matriculation until the completion of all course requirements. When these requirements are met, doctoral students must register for a minimum of 1 credit each fall and spring semester until final copies of the dissertation are submitted and approved by the Program Director. Students receiving funding such as assistantships, fellowships, loans, grants, scholarships or traineeships or needing to maintain appropriate visa status may be required to register for more than 1 credit to meet full-time status requirements. These students should check with the program director regarding such requirements to ensure that they remain qualified for funding and/or in good standing. Doctoral students do not have to register for graduate credits during summer sessions unless they plan to make use of University facilities or faculty time.

Unless excused by an official Leave of Absence (which in no case may exceed one year throughout the student's degree program), all doctoral students are subject to the Continuous Enrollment Policy and must pay tuition and fees in order to remain in the program. If the student fails to obtain a Leave of Absence or maintain continuous enrollment, he or she will be required to apply for re-admission, to pay the Graduate College application fee, and pay all overdue tuition and fees, including cumulative late penalties. No tuition or registration waivers will be applied retroactively. In accordance with university policy, students may not utilize a Leave of Absence to pursue courses in another graduate program at Gannon University.

TRANSFER CREDITS

Students who have graduate credits beyond 30 for their Master's or Professional degree are eligible to transfer up to 15 credits from another college/university. Credits for transfer must meet the requirements for the Foundations portion of the doctoral program. No credits may be transferred for the Core or Dissertation portions of the program. Approval of all transfer credits is at the discretion of the Program Director.

SUMMER RESIDENCY

A week-long summer residency is required each summer on the Gannon Campus in Erie, PA.

ACADEMIC STANDARDS

All students in the OLL-Ph.D. program are required to demonstrate good progress toward degree completion, both in their individual assigned coursework and summative performance scores. Respecting performance criteria in individual courses, the faculty instructor of record establishes standards for assessing student performance and monitoring progress toward mastery of curricular content throughout the semester, Summative performance scores awarded by faculty are based on criteria established in each course syllabus. Quality points based on these scores, awarded in accordance with university policy, determine overall grade point average.

In addition to university guidelines governing Graduate Student Academic Action, the following standards are established for students in the OLL-Ph.D. program, respecting cumulative performance in the doctoral program:

- Students earning a score of C+ or lower in any prerequisite course may be required to repeat the course prior to registering for subsequent courses that build upon that knowledge base.
- Irrespective of overall GPA, students accumulating two or more C+ scores on their core doctoral course work may be dismissed from the program.
- Courses in the doctoral core may only be repeated once in an attempt to raise a score of C+ or lower.

Permission to waive requirements for Academic Performance Standards respecting prerequisite courses must be obtained from both the Program Director and the faculty of record for any subsequent courses. Doctoral students whose cumulative performance falls below these standards will be dismissed from the program.

THE CURRICULUM

I. Multidisciplinary Theory and Research Core. (42 credits)
Courses in the Multidisciplinary Theory and Research Core are taken in a prescribed order determined by the Program Director for each cohort. Students unable to maintain pace with their cohort due to either academic or personal factors must meet with the Program Director to amend their Individualized Curriculum Plan (ICP) to reflect and an alternate course sequence for fulfilling Core requirements that satisfy established prerequisites. Students unable

to maintain a two-course per semester pace may also approach the Program Director to work out an alternate course sequence for fulfilling Core requirements. Under no circumstances will an amended course sequence extend the 7 year statute of limitations governing the completion of graduate degrees at Gannon University.

- **Multidisciplinary Theory Core (27 credits)**

GOLL 801	Advanced Organizational Theory	3
GOLL 802	Advanced Leadership Theory	3
GOLL 811	Psychosocial Dimensions of Leadership	3
GOLL 812	Organizational Analysis: Structure and Design	3
GOLL 820	Qualitative Research Methods	3
GOLL 814	Leading Organizational Culture and Change	3
GOLL 810	Dissemination of Academic Research	3
GOLL 816	Developing Leadership Capacity	3
GOLL 817	Global Perspectives on Learning and Leadership	3

- **Research Core (15 credits)**

GOLL 818	Doctoral Statistics I	3
GOLL 819	Doctoral Statistics II	3
GOLL 821	Research Methods I	2
GOLL 822	Research Methods II	2
GOLL 823	Research Methods III	2
GOLL 896	Dissertation Seminar I	1
GOLL 897	Dissertation Seminar II	1
GOLL 898	Dissertation Seminar III	1

II. Foundations: Learning, Leadership, and Cognates (18 credits)*

Requirements for the Foundations may be satisfied through a combination of transfer credits and/or courses taken concurrently while completing the Multidisciplinary Core or Doctoral Dissertation components of the program. Courses satisfying the Foundations requirement must be taken at the masters' level or above. Qualifying courses are selected to satisfy the following content specifications:

- **Learning** (6 credits) – This set of coursework focuses on learning theory and factors affecting the dynamics of organizational learning, including curriculum and instruction, training and development, needs assessment, human resource management, research and evaluation methodologies, quality management, processes of learning, and human development.
- **Leadership** (6 credits) – This set of coursework focuses on leadership theory and factors affecting the dynamics of organizational leadership including organizational behavior, context, change, culture and issues of organizational ethics and globalization.
- **Cognates** (6 credits) – This includes post-masters course work relevant to the student's career plans or dissertation, including prerequisite Fundamentals of Applied Statistics (GOLL 806) and Directed Readings (GOLL 799) taken with a student's dissertation advisor.

* Transfer courses for the Individual Foundations cannot exceed 15 credits. Foundations courses to be taken after beginning the Multidisciplinary Theory and Research Core, whether at Gannon or another college/university must be selected in consultation with the Program Director.

III. Doctoral Dissertation. (6 credits)

After completing all courses in the Multidimensional Theory and Research Core, students must register for a minimum of one (1) credit of dissertation with their selected faculty advisor in each ensuing Fall and Spring semester until satisfying the dissertation requirement. Summer registration is only required if a student is actively working with their faculty advisor during the summer months. A minimum of 6 credits of dissertation credits are required. Additional dissertation credits are required only if a student has not completed the dissertation, or other requirements for graduation, and wishes to maintain their status in the OLL-PhD program until the 7 year limit is reached, in order to satisfy outstanding requirements for graduation.

GOLL 899	Dissertation	1-3

IV. Typical Course Sequence

The exact course sequence for each cohort is determined by the Program Director in consideration of a number of factors including: course prerequisites, content demands and workload, faculty availability, teaching loads, and scheduling conflicts among concurrent cohorts. Students will be advised by the Program Director which courses they should register for each semester as soon as the schedule has been finalized. The general order of courses to be taken, other factors notwithstanding, and is subject to change, has been established as follows:

Year 1

Summer

GOLL 821	Research Methods I	2
GOLL 896	Dissertation Seminar I	1

Fall Semester

GOLL 812	Organizational Analysis: Structure and Design	3
GOLL 802	Advanced Leadership Theory	3

Spring Semester

GOLL 806	Fundamentals of Applied Statistics	3
GOLL 820	Qualitative Research Methods	3

Year 2

Summer

GOLL 822	Research Methods II	3
GOLL 897	Dissertation Seminar II	3

Fall Semester

GOLL 816	Developing Leadership Capacity	3
GOLL 818	Dissertation Statistics I	3

Spring Semester

GOLL 811	Psychosocial Dimensions of Leadership	3
GOLL 801	Advanced Organizational Theory	3

Summer

Total		3

Year 3

Summer

GOLL 823	Research Methods III	2
GOLL 898	Dissertation Seminar III	1

Fall Semester

GOLL 814	Leading Organizational Culture and Change	3
GOLL 819	Doctoral Statistics II	3

Spring Semester

GOLL 817	Global Perspectives on Learning and Leadership	3
GOLL 810	Dissemination of Academic Research	3

Years 4 – 7

Summer

GOLL 899	Dissertation (conditional – see Dissertation specifications above)	1

Fall

GOLL 899	Dissertation 1 credit (minimum)	1

Spring

GOLL 899	Dissertation 1 credit (minimum)	1

COURSE DESCRIPTIONS

GOLL 799 Directed Readings
3 credits
Prerequisite: Permission
Directed Readings is a review of literature relating to a specified academic domain identified by the student in collaboration with the instructor. It is applicable for Individual Foundations credits only.

GOLL 801 Advanced Organizational Theory
3 credits
Prerequisite: GOLL 802 Advanced Leadership Theory, GOLL 812 Organizational Analysis: Structure and Design
This course is designed to enhance understanding of the organization as a vehicle for a group of people to organize and utilize resources in the pursuit of shared goals. The course originates from a view of the organization as a system embedded in an environmental context. Students will investigate how resource dependencies confer power to certain firms and expose others to dependencies. Students will participate in discussions about organizational processes that allow firms to integrate strategy, structure and internal process in an attempt to best adapt to environmental change. The course will focus on major contemporary topics, issues, and contributions from the literature, with emphasis on the effective integration of human capital within the formal structure of the firm. It will also stress the applicability of the theory of organizing to all forms of organizations: public and private, for profit and not-for-profit.

GOLL 802 Advanced Leadership Theory
3 credits
Prerequisites: GOLL 821 Research Methods I, GOLL 896 Dissertation Seminar I
This doctoral seminar provides a context for the scholarly analysis, critique and synthesis of foundational theories of leadership, including classical, traditional, contemporary and emergent perspectives. Principles and techniques of comparative theoretical analysis are introduced, demonstrated and applied throughout the course. The fundamental tenets of each theory introduced are considered in relation to tenable propositions, accrued evidence, organizational utility, and unanswered questions. Throughout the course, comparative analysis and critique of leadership theory is fostered with respect to the perennial questions informing research and scholarship in the field of leadership studies, culminating in the formulation of a conceptual framework for advancing the limits of existing knowledge.

GOLL 806 Fundamentals of Applied Statistics
3 credits
This course is an introduction to the fundamentals of applied statistics. Throughout the course you will be using a hand-calculator and statistical software to generate exploratory, univariate, bivariate, and basic multiple variable analyses. The main emphasis in applied statistics is practical application of statistical methods. Critical evaluation of each application is an important element of this process.

GOLL 810 Dissemination of Academic Research
3 credits
This class provides context for analysis, synthesis, critique and dissemination of doctoral student research. The foundational tenets to develop scholarly research for dissemination will include: clarifying a topic, identifying appropriate outlets, skills of academic writing, and developing an appropriate mode of presentation. Students will use cumulative research from courses within OLL, and/or their dissertation topic, to develop a writing plan and submit a paper for peer review.

GOLL 811 Psychosocial Dimensions of Leadership
3 credits
Prerequisite: GOLL 802 Advanced Leadership Theory
This advanced doctoral seminar introduces and explores significant psychological and social constructs that mediate or moderate leadership behavior and effectiveness. Theories of motivation,

personality, identity, self-concept, cognition, emotion, psychosocial development, and the dynamics of power and influence are explored, as they relate to the manifestation of leader and follower behavior in organizational settings. Interdisciplinary research illustrating the pervasive role and function of psychosocial factors in the construction and understanding of leadership processes provides a context for developing more nuanced approaches to advancing leadership theory and practice.

GOLL 812 Organizational Analysis: Structure and Design
3 credits
This course will provide students with an understanding of the structural framework of organizations, fundamental design decisions, and their implications for organizational performance. Through the course, students will be introduced to approaches to the study of organizations including instruments and techniques for organizational analysis. Students will apply relevant theory and analytical processes to identify the fit between organizational environment, strategy, work and structure. Current issues including the impact of information technology and globalization on structural design will also be explored.

GOLL 814 Leading Organizational Culture and Change
3 credits
Prerequisites: GOLL 811 Psychosocial Dimensions of Leadership
This course focuses on the role of leaders in understanding and managing the reciprocal processes of organizational culture and change. Normative and ethnographic approaches to analyzing organizational culture are introduced as core competencies for affecting change. Classical content and process theories of change are explored with respect to individual, social and anthropological implications. Cultural dynamics and processes of acculturation in organizations are examined in the context of evolutionary, teleological, life cycle, political and social cognitive perspectives on leading change. A model of organizational change in cultural context is introduced, along with research tools and strategies for assessing the extent to which leaders influence cultural dynamics and change processes in organizations.

GOLL 816 Developing Leadership Capacity
3 credits
Prerequisites: GOLL 802 Advanced Leadership Theory, GOLL 814 Leading Organizational Culture and Change
This theory-based, experiential capstone course enables students to master state-of-the-art techniques for developing leadership capacity in individuals, organizations and communities. Theories of adult development and models of leadership development provide a foundation for introducing an array of effective strategies proven to enhance leadership potential. Research on the efficacy of intervention strategies guides the application of leadership theories for purposes of assessment, interpretation and construction of targeted developmental plans.

GOLL 817 Global Perspectives on Learning and Leadership
3 credits
Prerequisites: GOLL 802 Advanced leadership Theory, GOLL 814 Leading Organizational Culture and Change
The continuing trend towards globalization had resulted in a growing need for leaders who can work effectively in multicultural contexts. In addition, it has prompted new questions about the extent to which current leadership and learning models translate effectively to non-Western cultures. This course will examine what constitutes effective learning and leadership across cultures. It will explore how approaches to learning and leadership can be adapted to align with varying cultural contexts. Students will also identify ways in which leaders can be prepared for expatriate assignments.

GOLL 818 Doctoral Statistics I
3 Credits
Prerequisite: GEDU 806 Fundamentals of Applied Statistics
Doctoral Statistics I is a second course in applied statistics. It assumes knowledge of fundamental statistical methods including; measures of central tendency and variability, hypothesis testing, basic graphics, analysis of variance and/or regression analysis. This course begins with a brief review of these topics. Following review coverage will include contingency tables and odds ratios, variable transformations, analysis of variance, analysis of covariance, multiple regression, and regression diagnostics. Instruction in the use of statistical software for all calculations is provided.

GOLL 819 Doctoral Statistics II
3 Credits
Prerequisite: GOLL 818 Doctoral Statistics I
Doctoral Statistics II is a continuation of the OLL Program's sequence in applied statistics. The goals for students in this course are; 1) to demonstrate the ability to employ models in which quantitative and categorical variables are used as explanatory and response variables and, 2) to develop competence in utilizing multivariate techniques for detecting latent constructs from measured variables. Methods for regression criticism covered in Doctoral Statistics I will be incorporated throughout.

GOLL 820 Qualitative Research Methods
3 credits
This course will introduce students to the theories, assumptions and practices underlying qualitative research. Specific skills will include understanding the philosophical assumptions, interpretive frameworks, and study designs of different qualitative methodologies, including narrative, phenomenological, grounded theory, case study, and ethnography. Using a seminar approach, students will learn to conduct research with a particular emphasis on rigor as it relates to study design, with the potential to create a qualitative proposal for a dissertation.

GOLL 821 Research Methods I
2 credits
Co-requisite: GOLL 896 Dissertation Seminar I
Providing an introduction to the fundamentals of social and behavioral research, this course provides a conceptual framework for doctoral students in Organizational Learning and Leadership to understand the conceptual foundations underlying effective research design. Students will begin to understand how research methods are predicated upon the theoretical frameworks and research questions or hypotheses derived from a comprehensive review pertinent literature in relevant disciplines. Students will learn how to evaluate existing research using a variety of theoretical and methodological perspectives. As a result of developing a greater understanding of research methods, students will demonstrate the ability to critique the efficacy of research methods used in a various types of published research.

GOLL 822 Research Methods II
2 credits
Prerequisites: GOLL 821 Research Methods I and GOLL 896 Dissertation Seminar I
Co-requisite: GOLL 897 Dissertation Seminar II
This course focuses on the conceptual and pragmatic issues involved in designing and justifying defensible research proposals. By exploring a broad range of quantitative and qualitative research methodologies the course emphasizes decision and selection criteria to be considered in making choices regarding the role of the investigator, empirical design, methods of data collection, population and sample selection, data analysis and interpretation of results.

GOLL 823 Research Methods III
2 credits
Prerequisites: GOLL 822 Research Methods II and GOLL 897 Dissertation Seminar II
Co-requisite: GOLL 898 Dissertation Seminar III
This course covers the social, technical, institutional and ethical dimensions of developing and defending doctoral-level research proposals. Guidance is provided for selecting and working with a committee chair, stating researchable problems and hypotheses, organizing and presenting scholarly arguments, developing a theoretical framework, selecting instrumentation, sampling and gaining access to populations, anticipating and addressing ethical concerns, and obtaining IRB approval. Understanding the structural elements of proposal writing will be emphasized, as well as considerations pertaining to the organization and presentation of ideas, issues relating to motivation and writing, organizing literature reviews, and developing a theoretical framework. The importance of articulating explicit plans for conducting data analysis, protecting human subjects, preserving data integrity, and preparing for an oral defense of design decisions will be stressed.

GOLL 890 Special Topics
1 to 3 credits

GOLL 896 Dissertation Seminar I
1 credit
Co-requisite: GOLL 821 Research Methods I
In this seminar, students assume responsibility for exploring the conceptual and practical foundations of social and behavioral research applied to the study of organizational learning and leadership. Basic concepts and practical skills are explored though group activities designed to foster transformative learning. Students will gain practice reading and searching the research literature, operationalizing variables, redesigning research studies, and considering fundamental epistemological issues underlying empirical approaches to understanding human behavior.

GOLL 897 Dissertation Seminar II
1 credit
Prerequisites: GOLL 821 Research Methods I and GOLL 896 Dissertation Seminar I
Co-requisite: GOLL 822 Research Methods II
In this seminar, students will be investigating the research process by selecting a specific research methodology tied to a theoretical framework and research question developed in Research Methods II. Progress in the sequential steps of developing and discussing the strengths and limitations of a research strategy will be presented and discussed each week in class. The combination of presenting the development of each component and receiving peer facilitation and feedback is intended to strengthen your skills in selecting, defending and implementing a dissertation proposal.

GOLL 898 Dissertation Seminar III
1 credit
Prerequisite: GOLL 822 Research Methods II and GOLL 897 Dissertation Seminar II
Co-requisite GOLL 823 Research Methods III
This course prepares students to deal effectively with the psychosocial, emotional and spiritual dimensions of developing, defending and executing doctoral research. The process of completing a doctoral dissertation presents personal challenges relating to time management, balancing competing priorities, overcoming writing blocks, developing discipline, and maintaining commitment to a goal. Doctoral candidates often face competing demands, negative environmental cues, social or institutional detractors, and internalized messages that foster a fear of success, the threat of failure, and the unknown consequences of achieving a life intension. This course provides students an opportunity to acquire life skills for navigating these common impediments to translating their academic aspirations into reality.

GOLL 899 Dissertation
1-6 credits
Prerequisites: GOLL 821, 822, 823 Research Methods I, II, III; GOLL 896, 897, 898 Dissertation Seminar I, II, III; GOLL 818, 819 Doctoral Statistics I, II: Doctoral Candidate Status
The dissertation is the capstone experience in a student's academic career. In addition to supplementing a body of knowledge, it represents an original piece of work that establishes the student as an expert on a specific topic. The dissertation project should make a contribution to professional practice and/or knowledge. It should embrace the skills and knowledge that student has gained from course work, readings, and discussions. The doctoral candidate should have a passion to investigate and analyze an issue or practice aspect that will increase others' understanding of it through his or her research. Dissertations will be individual projects.

Physical Therapy

The Doctor of Physical Therapy (DPT) Degree

Chairperson: Kristine S. Legters, PT, DSc

INTRODUCTION

Physical Therapy is a health care profession that primarily focuses on the preservation, development, and restoration of optimal function. Physical therapists provide evaluative, rehabilitative, and preventive health care services designed to alleviate pain; prevent the onset and progression of impairment, functional limitation, and participation restrictions resulting from injury, disease, or other causes; and restore, maintain and promote overall fitness, health and optimal quality of life. Physical therapists work with individuals of all ages who demonstrate movement dysfunction, or the potential for such dysfunction, of the neurological, musculoskeletal, integumentary, and cardiopulmonary systems.

Physical therapists practice in a hospital setting or provide services in out-of-hospital settings through home health agencies, in skilled nursing facilities, in industrial settings, through public health agencies, in private physical therapy clinics, in public schools and in a variety of other nontraditional settings.

VISION

Gannon University's Doctor of Physical Therapy Program in Erie, PA will be a leader in educating autonomous physical therapists who participate in integrative and collaborative practice to facilitate high quality health and educational outcomes. We will be practitioners of choice in the community, recognized as experts in movement, function and health. As leaders we will embrace our social responsibility, promote humanistic care, and contribute to the profession's body of knowledge.

MISSION

The mission of the Doctor of Physical Therapy Program at Gannon University in Erie, PA facilitates holistic patient/client-centered management related to movement, function and health. We prepare our graduates to be knowledgeable, service-oriented, reflective practitioners. Our graduates render evidence based, professional judgments concerning patient/client needs by virtue of critical thinking, interprofessional collaboration, lifelong learning, and ethical principles. They possess the intellect, psychomotor proficiency, leadership capabilities, and core values to meet the current and future needs of the profession, the health care system and society.

PHILOSOPHY

- Physical therapists are integral members of the health care team who are recognized and respected for their education, experience, and expertise in movement, function and health. The Doctor of Physical Therapy Program at Gannon University in Erie, PA is guided by the following tenets: The essence of physical therapy practice is patient/client-centered management for body functions, activity and participation related to movement, function and health.
- Professional physical therapist education should prepare individuals to be autonomous practitioners capable of providing direct access.
- Active, integrative and experiential learning methods promote student self-reliance, increase self-assessment skills and develop a pattern of independent learning that will promote lifelong learning and continuing professional development.
- Evidence-based practice (EBP) is the framework for physical therapy practitioners' clinical decision making. EBP skills are cultivated through development of self-directed learning, utilizing a variety of resources that are enhanced by technology.
- The health care environment is continually evolving. Physical therapist practice encompasses roles in primary, secondary, and tertiary care, as well as prevention, health promotion and wellness.
- Practitioners are educators who use their knowledge, creativity, communication and interpersonal skills to promote the health of individuals and communities.
- Global citizenship is expressed within the practitioner's life by advocating for equitable allocation of healthcare resources, providing of culturally sensitive care; maximizing multicultural learning; cultivating awareness and perspective of the global society; and understanding the existence of, the cause of, and our role in addressing health disparity.
- Competency based education ensures that practitioners demonstrate proficiency in knowledge, psychomotor, and affective domains.
- Professionalism is an integral part of physical therapy education and practice.

GOALS

Consistent with the University's and Program's Mission Statement, the goals of the Doctor of Physical Therapy Program at Gannon University Erie Campus are below:

- The DPT Program and DPT faculty will deliver evolving contemporary, evidence-based professional Doctor of Physical Therapist education.
- The DPT Program will graduate knowledgeable, service-oriented, collaborative practitioners.
- The DPT Program and DPT faculty will support the growth of physical therapy by developing graduates who engage in ongoing professional development.
- The DPT Program, DPT faculty, and students/graduate will promote the health, wellness, and quality of life in the community and society.
- The DPT faculty will contribute to the advancement of knowledge in physical therapy and health science through scholarly inquiry.
- The DPT faculty and students/graduates will model professionalism through involvement in the University, the profession and associated organizations.

OUTCOMES

Our students at graduation will be competent in patient/client centered care management for body functions, activity and participation related to movement, function and health.

Our students at graduation will demonstrate professionalism and ethical behavior in all aspects of the educational, community and clinical setting.

Our students at graduation will incorporate evidence-based practice in clinical decision making.

Our students at graduation will be skilled in educating, collaborating, and communicating with patients/clients, caregivers, colleagues, payers and policy makers.

ADMISSION

Prerequisite Course Requirements for entry into the Doctor of Physical Therapy Program include the following:

Biology	2 semesters
(200 or 300 level Human Anatomy and Physiology courses do not meet this prerequisite)	
Chemistry	2 semesters
Psychology	1 semester
(200 level behavioral/social science course)	
Statistics	1 semester
Human Anatomy with Lab	1 semester
(Human Gross Anatomy recommended; course should be at 200 or 300 level at four-year degree granting institution)	
Human Physiology with Lab	1 semester
Exercise Physiology (lab recommended)	1 semester
Physics with Lab	2 semesters

Important Note Regarding Prerequisites:
Prerequisites must be completed within five years preceding entrance to the graduate program.

Recommended Courses:
Social Sciences – at least two additional semesters in social sciences (i.e., Sociology, Social Psychology) Kinesiology with lab

Communication:
Practice as a health care professional requires the ability to communicate both in written and oral form. The physical therapy program stresses communication and expects enrolled students to demonstrate graduate level competence in written as well as oral communication.

ADMISSION REQUIREMENTS

- Baccalaureate degree from an accredited college or university
- cumulative prerequisite course quality point average (QPA) of 3.0 or better (4.0 scale). Grades below a C are not acceptable
- overall undergraduate QPA of 3.0 or better (4.0 scale)
- applicant demonstrates the ethical, personal and professional qualities to fulfill the role of the physical therapist as determined by review of the applicant's references
- application review begins on October 1; application deadline December 1
- qualified applicants will be called for an informational session
- TOEFL – Minimum score of 79 on internet exam for all applicants from non-English speaking countries
- meet essential functions: physical, emotional, intellectual, and communication standards

ESSENTIAL FUNCTIONS OF THE STUDENT PHYSICAL THERAPIST

Essential functions are the activities that a student physical therapist must be able to perform in partial fulfillment of the requirements for successful completion of the professional curriculum. Every student must be able to perform these essential functions, with or without reasonable accommodations, while practicing safely, ethically, and in a legal manner. Reasonable accommodations are based on individual need, program essential requirements, public safety, and no undue hardship on the University or clinical sites.

If a student is unable to perform these essential functions, it is the student's responsibility to:

1. Reveal a need for reasonable accommodations prior to entering the professional curriculum.
2. Obtain diagnostic data to substantiate a claim of need for reasonable accommodations.
3. Provide the diagnostic data to the institution prior to entering the professional curriculum.

The ability to perform essential functions is expected of students in the classroom, labs, simulated clinical settings, and while on clinical education assignments. The Doctor of Physical Therapy Program's at the Erie PA campus essential functions are described below by: 1) category and 2) examples. The examples are for clarity and do not represent an exhaustive list of all possible activities.

CATEGORY and EXAMPLE

Behavior – ability to act in a professional manner
- Practice safely, ethically, legally
- Demonstrate responsibility for lifelong professional growth and development

Critical thinking – ability to make clinical judgments
- Identify cause/effect relationships
- Develop patient outcomes/goals/interventions
- Respond to emergencies
- Apply standard precautions
- Apply teaching and learning theories in clinical practice
- Participate in scientific inquiry

Communication – ability to verbalize and write
- Explain treatment interventions
- Initiate health teaching
- Document and interpret physical therapist actions and patient responses

Coping – ability to perform in stressful environments or under deadlines
- Maintain professional demeanor in all situations
- Accept constructive feedback
- Prioritize multiple commitments
- Recognize problems and apply stress management techniques

Hearing – auditory ability sufficient to monitor and assess health needs
- Monitor alarms and emergency signals
- Respond to a timer

Interpersonal – ability to interact with groups from a variety of backgrounds
- Establish rapport with patients, clients, and colleagues
- Recognize psychosocial impact of dysfunction/disability
- Demonstrate respect for the needs of the patient and family
- Demonstrate respect for diversity

Motor Skill – gross and fine motor abilities sufficient to provide safe and effective physical therapy
- Calibrate and operate equipment
- Maneuver in patients' rooms and treatment spaces
- Guard patients and perform facilitation techniques during gait training
- Perform physical therapy assessment and treatment activities such as ROM, MMT, debridement, or use of physical agents

Tactile – ability to use touch to monitor and assess health needs
- Palpate
- Apply resistance during examinations or interventions

Visual – visual ability sufficient to monitor and assess health needs
- Observe patients' responses
- Monitor vital signs
- Read medical records
- Observe integumentary integrity

FINANCIAL ASSISTANCE

The tuition for students in the DPT program at the Erie, PA campus remains at the initial rate of when the student enrolled in the DPT program; thus tuition is not impacted by increases experienced during the three years of enrollment. Scholarships are provided to those students with an overall grade point average of 3.7 or higher at the time of enrollment. These scholarships are renewable for the second and third year of the program. Graduate assistantships are available to applicants to the program. Additional information about these assistantships is available from the DPT program or the program website.

CURRICULUM

Gannon University Erie campus offers an entry level DPT degree after the completion of 33 months of study (including summers). Building on the study of normal structure and function, the curriculum plan uses a theoretical base to build courses and learning experiences which prepare the student for the contemporary practice of physical therapy. Beginning with basic sciences, followed by clinical and physical therapy sciences, systems-based sequencing of the movement systems of musculoskeletal, neuromuscular, cardiovascular, pulmonary and integumentary are presented. Elements of the patient/client management model including examination, evaluation, physical therapy differential diagnosis, prognosis, intervention, and outcomes are integrated into each of the clinical science courses. Both clinical science and research content are framed within an evidence-based practice format, utilizing current scientific research in conjunction with clinical experience for a specific patient/client problem within the physical therapists' scope of practice. Concepts between and within each course are cumulative, competency based, and continued enrollment depends upon mastery and use of previous concepts. Practical clinical experiences are integrated into the academic program to allow immediate application of didactic materials. The co-Directors of Clinical Education assigns students to clinical sites, based on student needs and learning goals. In addition to sites in the Erie and western Pennsylvania areas, the program offers over 300 clinical experiences at sites throughout the country. This enables the student to have the opportunity to practice with a culturally diverse client population and learn various physical therapy approaches from experienced clinicians.

CURRICULUM REQUIREMENTS

The DPT degree program at the Erie, PA campus requires one hundred eight (108) credit hours beyond the baccalaureate degree and must be completed as a full-time program. The curriculum below is the major didactic courses, although lab material is a large component of the content as indicated in the course descriptions.

1st Semester – Fall		**Credits**
GDPT 811	Applied Anatomy	2
GDPT 818	Foundations in Human Movement	6
GDPT 815	Essentials of Physical Therapy Practice	2
GDPT 816	Community Health Initiative 1	1
GDPT 802	Foundations in Pathology and Medical Managements for the PT 1	3
GDPT 810	Health Care Systems and Policy 1	2
Total		16

2nd Semester – Spring		
GDPT 814	Evidence Based Practice 1	2
GDPT 822	Examination, Evaluation and Intervention for Musculoskeletal Movement Dysfunction of the Extremities	9
GDPT 825	Examination, Evaluation and Intervention for Musculoskeletal Movement Dysfunction of the Spine	4
GDPT 826	Community Health Initiative 2	1
GDPT 812	Foundations in Pathology and Medical Management for the PT 2	2
Total		18

3rd Semester – Summer		
GDPT 830	Health Care Systems and Policy 2	2
GDPT 831	Foundations in Geriatrics	2
GDPT 832	Clinical Experience 1 (10 weeks)	5
Total		9

4th Semester – Fall		
GDPT 821	Examination, Evaluation and Intervention for Cardiovascular and Pulmonary Dysfunction 1	2
GDPT 841	Foundations in Pediatrics	4
GDPT 843	Examination, Evaluation, and Intervention for Neuromuscular Movement Dysfunction 1	4
GDPT 848	Neuroscience	5
GDPT 847	Clinical Synthesis 1	1
GDPT 844	Evidence-Based Practice 2	1
Total		17

5th Semester – Spring		
GDPT 823	Examination, Evaluation and Intervention for Cardiovascular and Pulmonary Dysfunction 2	3
GDPT 850	Health Care Systems and Policy 3	2
GDPT 853	Examination, Evaluation, and Intervention for Neuromuscular Movement Dysfunction 2	9
GDPT 854	Evidence-Based Practice 3 and Guidance	2
GDPT 856	Community Health Initiative 3	1
Total		17

6th Semester – Summer		
GDPT 862	Clinical Experience 2 (10 weeks)	5
GDPT 867	Clinical Synthesis 2	1
GDPT 860	Health Care Systems and Policy 4	1
GDPT 866	Community Health Initiative 4	1
Total		8

7th Semester – Fall

GDPT 873	Examination, Evaluation, and Intervention for Integumentary and Multi-System Movement Dysfunction	4
GDPT 870	Health Care Systems and Policy 5	2
GDPT 872	Clinical Experience 3 (8 weeks)	4
Elective		2-3
Total		12-13

8th Semester – Spring

GDPT 882	Clinical Experience 4 (12 weeks)	6
GDPT 887	Clinical Synthesis 3	2
GDPT 886	Community Health Initiative 5	1
Elective		2-3
Total		11-12

Total credits: 108-109

ELECTIVES

Five to six credits of elective coursework are required in this curriculum plan. Students may fulfill this requirement either by completing their group evidence-based project, selecting a program sponsored elective course or an independent study course available during the student's 7th or 8th semesters of the program.

3 + 3 DPT PROGRAM

For those students enrolled in the accelerated 3 + 3 DPT program they must successfully complete the first-year graduate courses for completion of the intended undergraduate degree. Failure to successfully complete the graduate coursework may result in additional undergraduate coursework to fulfill the undergraduate degree requirements.

LICENSURE

To achieve licensure as a physical therapist, program graduates must successfully complete and pass a comprehensive licensure examination administered by the Federation of State Boards of Physical Therapy (www.fsbpt.org). To assist graduating students in preparing for the licensure examination, the program offers a series of practice licensure examinations prior to graduation.

To practice as a physical therapist in the United States, many states require a clean criminal record, with no misdemeanors or felonies. Individuals with criminal records should contact the physical therapy licensing board of the state where they would like to practice prior to applying for admission to a DPT program so that they may fully inform themselves of any restrictions that may apply to them.

ACCREDITATION

The Physical Therapy educational program at the Erie, PA campus is accredited by the Commission on Accreditation in Physical Therapy Education of the American Physical Therapy Association.

For further information on accreditation, contact: CAPTE, 3030 Potomac Ave., Suite 100, Alexandria, VA 22305-3085. Phone: (703) 706-3245.

CLINICAL EXPERIENCES

Students participate in four full-time clinical experiences [forty (40) total weeks] spaced throughout the curriculum. The clinical education component is designed to allow students the opportunity to practice and refine their assessment process, skills and techniques immediately following the presentation of the didactic material.

Many of the clinical sites that the DPT Program uses for clinical placements require a clear criminal record or the student may not be assigned to that site. Once admitted to a DPT program, a DPT student with a criminal record may be limited in clinical site assignments. Many clinical sites also require drug testing prior to starting the clinical experience. A clear drug test may be required for the student to participate in the learning experience.

The co-Directors of Clinical Education formally track the clinical site placements of each student, makes site selections, and advises each student to gain the most diverse exposure possible. Students are encouraged to complete clinical experiences outside of northwestern Pennsylvania.

COURSE DESCRIPTIONS

GDPT 802 Foundations in Pathology and Medical Management for the PT 1

3 credits

This is the first in a two-semester course sequence which will take a systematic approach to examine the structural and physiologic changes with various diseases and conditions, current medical and pharmaceutical management, and the role of the physical therapist. Basic pathologic principles will be discussed for all diseases and conditions covered within each system, with a focus placed on clinical presentation, etiology, risk factors, genetic predispositions, physiology and pathophysiology. Basic pharmacologic principles and general drug classifications within each system will also be reviewed. Drug therapy rationale and implications will be discussed, with an emphasis on adverse effects and impact on physical therapy intervention. Basic review of and rationale for laboratory values, medical imaging and diagnostic testing will be discussed as part of the management of these diseases and the role of the physical therapist. Clinical decision-making skills will be applied using selected patient case studies.

Systems and/or topics which will be covered in this course sequence include: genomics, immunologic, infectious disease, integumentary, oncology, hepatic, pancreatic, biliary, hematologic, lymphatic, renal, urologic, reproductive, and biopsychosocial diseases/disorders.

GDPT 810 Health Care Systems and Policy 1
2 credits
Physical therapists work within the healthcare system, and have responsibilities and reimbursement impacted by health policy. This course will facilitate first year physical therapy students' awareness of their role as a physical therapist related to reimbursement, ethics, advocacy, and team-based patient care. Using a blended classroom and online module approach to the course, the student will develop an understanding of the configuration of the US health care system and the delivery of physical therapy services, including the types of financing for these services.

GDPT 811 Applied Anatomy
2 credits
An advanced study of human anatomy with cadaver dissection and clinical correlation to the practice of physical therapy. The course is structured to provide laboratory experiences that supplement the didactic material presented in GDPT 815 and GDPT 818. Incorporated in the course are activities to develop skills of teamwork and education of peers and review of professional literature as it relates to anatomy.

GDPT 812 Foundations in Pathology and Medical Management for the PT 2
2 credits
This is the second in a two-semester course sequence which will take a systematic approach to examine the structural and physiologic changes with various diseases and conditions, current medical and pharmaceutical management, and the role of the physical therapist. Basic pathologic principles will be discussed for all diseases and conditions covered within each system, with a focus placed on clinical presentation, etiology, risk factors, genetic predispositions, physiology and pathophysiology. Basic pharmacologic principles and general drug classifications within each system will also be reviewed. Drug therapy rationale and implications will be discussed, with an emphasis on adverse effects and impact on physical therapy intervention. Basic review of and rationale for laboratory values, medical imaging and diagnostic testing will be discussed as part of the management of these diseases and the role of the physical therapist. Clinical decision-making skills will be applied using selected patient case studies.

Systems and/or topics which will be covered in this course sequence include: endocrine/metabolic, musculoskeletal, autonomic nervous system, peripheral vascular, cardiovascular, respiratory, gastrointestinal, neurologic and multi-system diseases.

GDPT 814 Evidence-Based Practice 1
2 credits
This course teaches students how to ask a focused clinical question; search for the best available evidence to answer the question; understand how to critically appraise the evidence; and understand how the application of evidence supports clinical decision-making. Students will develop their knowledge of research terms, concepts, designs and the most frequently used statistical analyses in physical therapy literature. Students will learn how to critically appraise evidence related to diagnostic testing, clinical measures, prognosis, treatment efficacy and effectiveness, and systematic reviews with and without meta-analysis.

GDPT 815 Essentials of Physical Therapy Practice
2 credits
The essential concepts of the physical therapy patient/client management model are introduced, set within the context of the Guide to Physical Therapist Practice, and ICF model of disability and functioning. The five elements of patient/client management are defined with an emphasis on data that may be generated from a patient/client history. The profession and history of physical therapy are introduced. Medical terminology is reviewed. Applications of fundamental physical therapy interventions are initiated including standard precautions, patient/client positioning, transfers, assistive ambulation, wheelchair management, and negotiation of architectural barriers. Students begin learning patient data collection including obtaining a patient/client history, assessing vital signs, and functional ability levels.

GDPT 816 Community Health Initiatives 1
1 credit
The purpose of this course sequence is for students to understand their expanding and potential professional role in the community; and to develop skills and application of educational activities, health promotion, prevention and wellness through experiential community-based learning (service learning). In the first course of this sequence, students will engage in community activities supportive of the Erie community and society. Students will begin to study the scope of local community services agencies that promote improving the health of the community and its constituents. Concepts of health promotion, wellness, and service learning will be introduced. Oral discussion, reflective writing, and student directed readings are used to link social responsibility with professional role in the community.

GDPT 818 Foundations in Human Movement
GDPT 819 Foundations in Human Movement Lab
6 credits
This course is an in-depth analysis of normal and pathological human motion that provides a framework for much of the basic and applied foundation and clinical content areas of the physical therapy curriculum. A major emphasis is placed on normal anatomical structure and function. Incorporated within the course is a study of the pathological mechanisms affecting human movements. Basic

theories of biomechanics and kinesiology are presented, along with application of these principles to biologic tissues, providing students with the necessary principles to analyze the forces generated by muscles and the forces applied to joints during gait and other activities. Fundamental patient evaluation procedures of palpation, joint motion, strength assessment, gait, posture assessment movement/task analysis, and sensory and reflex testing are also presented. Laboratory experiences are designed to enhance, integrate and apply lecture concepts.

GDPT 821 Examination, Evaluation, and Intervention for Cardiovascular and Pulmonary Dysfunction 1

2 credits

GDPT 823 Examination, Evaluation, and Intervention for Cardiovascular and Pulmonary Dysfunction 2

3 credits

These courses provide an integrated approach to the study of normal movement and movement system dysfunction of cardiovascular and pulmonary systems related to the International Classification of Functioning, Disability and Health (ICF) Model including relevant physiologic, anatomic, pathologic, differential diagnoses, pharmacology, imaging, medical and therapeutic concepts associated with these systems. The context of the course fosters evidence-based practice and is set within the framework of patient/client management model. Understanding the implications of psychosocial, cultural, economic, and vocational aspects of impairment and disability are incorporated into case discussions. The course offers lecture, clinical case-based discussion and laboratory learning experiences building on patient/client problems that facilitate development of student competencies linked to cardiovascular/pulmonary movement system function and dysfunction.

Part 1 (GDPT 821): The first course in this two-part series focuses primarily on examination, evaluation, diagnosis, prognosis, and interventions of movement dysfunction of the cardiovascular system. The impact of acute and chronic cardiovascular system dysfunction with pulmonary implications are studied. Interconnections of the cardiovascular system with diabetes mellitus and peripheral vascular disease are explored with an introduction to the sequelae of amputation. Exercise physiology concepts are reviewed including how the autonomic nervous system affects the cardiac and pulmonary systems during movement and the exercise response.

Part 2 (GDPT 823): This second course in the two-part series focuses primarily on examination, evaluation, diagnosis, prognosis, and interventions of movement dysfunction of the pulmonary system. The impacts of acute and chronic pulmonary dysfunction are emphasized with interconnections to the cardiovascular and peripheral vascular systems. Structure and function of the pulmonary systems, mechanics of ventilation/perfusion, lung volumes and capacity constructs are integrated within the context of pathologies, diagnostic testing (including arterial blood gases), mechanical ventilation, and interventions that optimize breathing or promote airway clearance and improve movement system function. Basic concepts about anatomy, physiology, and pathophysiology of the vascular, lymphatic and integumentary systems are identified as related to wound physiology, and normal and abnormal healing.

GDPT 826 Community Health Initiatives 2

1 credit

In the second course of this sequence, students take a more active role in work with community partners. Basic concepts of educational theory and development of behavioral objectives related to teaching and learning are introduced and applied to work with community partners. Cultural competency and differences within individuals and among cultural groups are introduced. Communication, health promotion and wellness, and professional roles and values are reinforced as students engage with new community partners.

GDPT 822 Examination, Evaluation and Intervention for Musculoskeletal Movement Dysfunction of the Extremities

GDPT 824 Examination, Evaluation and Intervention for Musculoskeletal Movement Dysfunction of the Extremities Lab

9 credits

The GDPT 822 and 824 course sequence is an integrated approach to the study of relevant physiologic, anatomic, pathologic, medical and therapeutic concepts related to musculoskeletal aspects of physical therapy practice of the extremities. The course includes the physical therapy evaluation process, physical therapeutic techniques and procedures, reimbursable documentation and patient care program development from a collaborative management approach. The course offers classroom, laboratory and clinical field experiences building from simple to complex problems to assist the student in developing necessary competencies in musculoskeletal physical therapy. Experiences related to psychological, social, cultural, economic and vocational aspects of impairment and disability are included. The course offers learning experiences using the problem oriented case study approach, organized around the musculoskeletal system, with an orientation toward health maintenance, promotion and prevention of disease and disability.

GDPT 825 Examination, Evaluation and Intervention for Musculoskeletal Movement Dysfunction of the Spine

GDPT 827 Examination, Evaluation and Intervention for Musculoskeletal Movement Dysfunction of the Spine Lab

4 credits

The GDPT 825 and 827 course sequence is an integrated approach to the study of relevant physiologic, anatomic, pathologic, medical and therapeutic concepts related to musculoskeletal aspects of physical therapy practice in the spine. This course will follow the same format and build on concepts and skills taught in GDPT 822 and 824. The course includes the physical therapy evaluation process, physical therapeutic techniques and procedures, reimbursable documentation and patient care program development from a collaborative

management approach. The course offers classroom, laboratory and clinical field experiences. Experiences related to psychological, social, cultural, economic and vocational aspects of impairment and disability are included. The course offers learning experiences using the problem oriented case study approach, organized around the musculoskeletal system, with an orientation toward health maintenance, promotion and prevention of disease and disability.

GDPT 830 Health Care Systems and Policy 2
2 credits
Physical therapy practice related to insurance regulations for documentation, billing and reimbursement varies in each setting. As the first year physical therapy student prepares to enter into the outpatient setting, this course will facilitate a deeper awareness of the physical therapists' role in the outpatient setting. Using a blended classroom and online module approach to this course, the student will develop an understanding of the legal, ethical and compliance standards for patient care in the outpatient physical therapy practice setting, their responsibilities related to supervision of physical therapist assistants, and the process related to emergency preparedness in patient care.

GDPT 831 Foundations in Geriatrics
2 credits
Foundations in Geriatrics is part of the lifespan content of the curriculum and complements the Foundations in Pediatrics course. Normal versus pathologic aging of all body systems will be defined. Common pathologies associated with aging will be considered. Specific examination, evaluation, diagnosis, prognosis, and interventions for the elderly will be identified. The impact of psychosocial aspects of aging are considered as they affect the health and well-being of the older adult. Ethical, legal, and health care issues specific to the geriatric population will be discussed.

GDPT 832 Clinical Experience 1 (10 weeks)
5 credits
This is a ten-week, full-time clinical experience provided primarily throughout the United States. The experience is designed to provide the student with the opportunity to develop competency in the management of patients with musculoskeletal dysfunction.

GDPT 841 Foundations in Pediatrics
4 credits
An in-depth study of the theories and concepts related to normal motor development and motor control. Building upon this foundation, the course provides an integrated approach to the study of all relevant physiologic, anatomic, pathological, medical and therapeutic concerns related to pediatric musculoskeletal and cardiopulmonary physical therapy practice. This course includes the physical therapy evaluation process, physical therapeutic techniques and procedures, and patient care program development from a collaborative management paradigm. The course offers learning experiences using direct patient care opportunities in laboratory and clinical settings to assist the student in developing some of the instrumental competencies in pediatric physical therapy. Experiences related to psychological, social, cultural, economic, and vocational aspects of impairment and disability of acute, sub-acute and chronic cardiopulmonary and musculoskeletal care are included. The course offers learning experiences presented using the problem/case study approach, organized around the musculoskeletal and cardiopulmonary systems, with an orientation toward health maintenance and promotion and prevention of disease.

GDPT 843 Examination, Evaluation, and Intervention for Neuromuscular Movement Dysfunction 1
GDPT 845 Examination, Evaluation, and Intervention for Neuromuscular Movement Dysfunction 1 Lab
4 credits
An integrated approach to the study of relevant physiologic, anatomic, pathologic, medical and therapeutic concepts related to pediatric neurological physical therapy practice. The course includes the physical therapy evaluation process, physical therapeutic techniques and procedures, and patient care program development from a collaborative management paradigm. The course offers learning experiences using direct patient care opportunities in the laboratory through the utilization of children from various community resources to assist the student in developing the necessary competencies of physical therapy practice in these areas. The course offers learning experiences using the problem/case study approach, organized around the body system, with an orientation toward health maintenance and promotion and prevention of disease and disability.

GDPT 844 Evidence-Based Practice 2
1 credit
Students will advance their evidence-based practice skill selecting databases of synthesized evidence rather than primary resources to answer focused clinical questions. Quality Appraisal of various types of outcomes, self-report outcomes and qualitative research paradigms are introduced. Utilizing the synthesized evidence databases, students will individually develop an annotated bibliography related to evidence-based practice topics that are faculty developed and lead.

GDPT 847 Clinical Synthesis 1
1 credit
This course is designed to facilitate in the physical therapy student the ability to synthesize clinical data with the research evidence supporting the examination and treatment of the selected diagnoses. The student will be required to analyze the literature regarding a selected case, facilitate a discussion of examination findings and treatment selection in a group setting with colleagues, and critique and reflect upon their previous examination and treatment of the case. A comprehensive examination is incorporated in this course to assist in review and synthesis of information presented during the first year of the curriculum.

GDPT 848 Neuroscience

GDPT 849 Neuroscience Lab
5 credits
This course is a study of structure and function of the human central and peripheral nervous system including vascular components and special senses. The course emphasizes nervous system control of movement. Laboratory sessions include human nervous system material as depicted in the course lab manual and atlas, brain sections, and anatomical models. The course uses clinical correlations to reinforce comprehension of structure and function.

GDPT 850 Health Care Systems and Policy 3
2 credits
Physical therapists work within the healthcare system, and have responsibilities and reimbursement impacted by health policy. This course will facilitate second year physical therapy students' awareness of their role as a physical therapist related to reimbursement, ethics, advocacy, and team-based patient care. The student will develop an understanding of the configuration of the US health care system and the delivery of physical therapy services, including the types of financing for these services.

GDPT 851 Evidence-Based Practice Guidance 3
1 credit
The purpose of this course is for student groups to work with their EBP Content advisors to continue developing and refining their evidence-based practice skills. Under the guidance of their content advisor, student EBP groups will synthesize: a written narrative review of the literature related to their evidence-based project topic; and, prepare and present to peers a synopsis of their EBP topic. Content advisors will also assist their student group to identify research design methods and data analyses for a specific problem/purpose statement and/or research question related to their EBP topic.

GDPT 853 Examination, Evaluation, and Intervention for Neuromuscular Movement Dysfunction 2
GDPT 855 Examination, Evaluation, and Intervention for Neuromuscular Movement Dysfunction 2 Lab
9 credits
An integrated approach to the study of relevant physiologic, anatomic, pathologic, medical and therapeutic concepts related to adult cerebrovascular, traumatic and degenerative neurologic physical therapy practice. The course includes the physical therapy examination and evaluation process, physical therapeutic techniques and procedures, and patient/client care program development from a collaborative management paradigm. The course offers learning experiences using direct observation and supervised interaction in the laboratory and clinic with adult volunteers with various neurologic disabilities, to develop the necessary competencies of physical therapy practice in these areas. Also incorporated are direct patient care opportunities in the clinical setting through the use of experienced clinicians working with the students in a clinical mentoring program. The course offers learning experiences which include the use of problem based/case study approach, organized around the body system, with an orientation toward health maintenance and promotion and prevention of disease and disability.

GDPT 854 Evidence-Based Practice 3
The purpose of this course is for students to continue to develop and refine their evidence-based practice skills. The course will culminate with a group written synthesized narrative review of the literature for their evidence-based project topic, under the guidance of their content advisor. Student will learn to identify and describe research design methods and data analyses for a specific problem statement and/or research question. Students will also demonstrate an understanding of the legal and ethical standards required when designing and conducting a research study that uses human subjects.

GDPT 856 Community Health Initiatives 3
1 credit
In the third course of this sequence, students collaborate with community partners and peers to complete two distinct service-learning projects. Development of professional skills, attitudes and values is fostered through community and peer engagement. Students develop, deliver, and evaluate at least one community educational presentation that addresses community-identified needs. Students deepen their understanding of difference in health care practices among individuals and culture groups.

GDPT 860 Health Care Systems and Policy 4
1 credit
The American Physical Therapy Association (APTA) identified their vision statement as "Transforming society by optimizing movement to improve the human experience." The Health Care System and Policy 4 (GDPT 860) and 5 (GDPT 870) courses apply this vision statement through collaborative group project assignments that incorporate the development of a simulated health-focused physical therapy programs. Through the project development, the students gain an appreciation for the role of business literacy in health care transformation and the necessity for excellence in professional skills. This course introduces the theories and application of management activities including personnel relations, budgeting, planning, organizing, and operating a physical therapy program in a variety of health settings.

GDPT 861 Evidence-Based Practice Guidance (Elective)
1 credit
The purpose of this course is for student evidence-based practice groups, who elect to continue their evidence-based practice project, to develop a detailed plan for completing their project. Students will be required to discuss the comparative merits of the various methods of evidence-based practice communication and select the method which best suits their project. Students will be required to develop a contract with their faculty advisor which specifically details their project and includes a strategy for searching and synthesizing the literature. This contract will detail the expectations for progression of evidence-based practice project through 7th and 8th semesters

of the program. End products for the Faculty-Student Evidence-Based Practice Contract may include but are not limited to synthesis of a research report or article ready for publication; platform or poster presentation; Case Report; Special Topic Reviews (such as systematic reviews, groups of tests/measures, clinical predictor rules); or Journal Club with regularly scheduled meetings with specifically focused topics. Data analysis procedures using SPSS will be offered and available to students whose end product requires quantitative analysis of data.

GDPT 862 Clinical Experience 2
5 credits
Ten-week full-time clinical experience provided primarily throughout the United States. The experiences are designed to provide the student with the opportunity to develop competence in the management of patients with neurologic, orthopedic and cardiac dysfunction in a variety of settings, including but not limited to, acute care, inpatient rehabilitation, or skilled nursing facility.

GDPT 866 Community Health Initiatives 4
1 credit
In the fourth course in this sequence, students learn to: 1) compare the levels of the health literacy and identify adaptive educational techniques to use with individuals throughout the ranges of health literacy; 2) apply advocacy concepts for the health and wellness needs at the individual level; and, 3) develop a Capstone project proposal in collaboration with a student-selected community organization. The project will meet the needs or objectives identified by the organization. The project can take any form mutually agreed upon by the course coordinator, faculty mentor and student, providing it meets required proposal guidelines. Examples of an organization's needs include but are not limited to: educational presentations, marketing plans, consultation, advocacy, or assistance with the organization's sponsored events. Capstone project proposal outcomes reflect a plan that blends meeting the community partner's needs/objectives with continued development of students' Professional Core Values.

GDPT 867 Clinical Synthesis 2
1 credit
This course is designed to facilitate in the physical therapy student the ability to synthesize clinical data with the research evidence supporting the examination and treatment of the selected diagnoses. Within the structure of the course, the student is required to 1) analyze the literature regarding the self-selected patient case, 2) facilitate a discussion of these findings in a small group setting with colleagues, 3) synthesize the group's findings with evidence-based practice in an expert panel classroom presentation, and 4) critique and reflect upon the previous examination and treatment selections of the patient cases. A comprehensive exam will be given in the course which reflects content from the previous five semesters as a preparatory experience for the National Physical Therapy Examination (NPTE).

GDPT 870 Health Care Systems and Policy 5
2 credits
The American Physical Therapy Association (APTA) identified their vision statement as "Transforming society by optimizing movement to improve the human experience." The Health Care System and Policy 4 (GDPT 860) and 5 (GDPT 870) courses apply this vision statement through collaborative group project assignments that incorporate the development of a simulated health-focused physical therapy program. Through the project development, the students gain an appreciation for the role of business literacy in health care transformation and the necessity for excellence in professional skills. This course continues to build on the foundational business and management practices presented in Health Care System and Policy 4 (GDPT 860), and includes professional development skills related to resume development, application of interview skills and networking practice.

GDPT 872 Clinical Experience 3
4 credits
This is an eight-week, full-time clinical experience provided in a variety of health care settings. The experience is structured to provide the student with the opportunity to develop competency in the management of patients with acute or chronic dysfunction.

GDPT 873 Examination, Evaluation, and Intervention for Integumentary and Multi-System Movement Dysfunction
4 credits
This course integrates information from prior system courses with the added complexity associated with the patient with multi-system dysfunction. Systems reviewed in more detail will include immunologic, integumentary, urogenital and gastroenteric, as they apply to the physical therapy examination, evaluation and intervention of patients with multi-system dysfunction with consideration for genomics, hematologic conditions, nutritional needs, neoplastic conditions. Previous course work will be used as a foundation for developing patient care management skills specific to patients with prosthetics, pelvic floor dysfunction and obesity. Aspects of impairment and disability related to psychological, social, economic and/or vocational issues and needs are included. The course offers lectures, laboratory activities with peers and community volunteers, evidence-based practice reading assignments, clinical observation experience, and problem-oriented case discussions building from simple to complex patient/client scenarios, all to develop the necessary competencies of physical therapy practice in these areas.

GDPT 874 Evidence-Based Practice 4 (Elective)

GDPT 871 Evidence-Based Practice Guidance 4 (Elective)
2 credits
Students will progress through the course by completing the work detailed by the Faculty-Student Evidence-Based Practice Contract established in the previous semester. End products for the Faculty-Student Evidence-Based Practice Contract may include but are not limited to synthesis of a research report or article ready for publication; platform or poster presentation; Case Report; Special Topic Reviews (such as systematic reviews, groups of tests/measures, clinical predictor rules); or Journal Club with regularly scheduled meetings with specifically focused topics. Progress toward the identified end product of the contract is required.

GDPT 882 Clinical Experience 4
6 credits
This is a twelve-week, full-time clinical experience provided primarily throughout the United States. The experience is designed to provide the student with the opportunity to develop advanced skills in the management of patients in an interest area or to practice in a unique setting. This experience will also emphasize the administrative, consultative and diagnostic role of the autonomous physical therapist.

GDPT 884 Evidence-Based Practice 5 (Elective)

GDPT 881 Evidence-Based Practice Guidance 5 (Elective)
2 credits
Students will progress through the course by completing the work detailed by the Faculty-Student Evidence-Based Practice Contract established in the previous semester. End products for the Faculty-Student Evidence-Based Practice Contract may include but are not limited to synthesis of a research report or article ready for publication; platform or poster presentation; Case Report; Special Topic Reviews (such as systematic reviews, groups of tests/measures, clinical predictor rules); or Journal Club with regularly scheduled meeting with specifically focused topics. Progress toward the identified end product of the contract is required.

GDPT 886 Community Health Initiatives 5
1 credit
In this final capstone course students complete their community Capstone project as per their proposal developed in GDPT 866: Community Health Initiative 4. Students will demonstrate their role as an educator and/or advocacy at the individual level. Students share their project outcomes with other student physical therapists and community members through oral and/or visual presentations; and prepare a written summary about community Capstone project outcomes that reflect how the community partner's needs/objectives were progressed and/or achieved; and, on how Capstone Project contributed to the development of students' Professional Core Values.

GDPT 887 Clinical Synthesis 3
2 credits
This course is designed to facilitate in the physical therapy student the synthesis of clinical data with the research evidence supporting the management of selected patient(s). Within the structure of the course, the student is required to analyze the literature, facilitate a discussion of these findings in a group setting with colleagues, and critique and reflect upon their management of patient(s). The course incorporates self-assessment, group activities, and practice examinations as part of exam preparation for the National Physical Therapy Examination (NPTE).

GDPT 899 Independent Study (Elective)
1-3 credits
This course enables students to enrich their knowledge and competency in an **advanced** area of interest related to PT practice. The student designs the objectives of the learning experience(s) with guidance from the Independent Study Course Coordinator and a faculty member (content advisor) by means of a learning contract. Only the student's motivation and the availability of the selected experience may limit the type of independent study experience. The independent study focuses on enrichment; a new and varied advanced learning opportunity. Independent study may not be used to remediate existing didactic or clinical deficiencies (i.e., incompletes or below mastery standing). Through this learning experience, the student will acquire and demonstrate a new or enhanced body of knowledge.

Physician Assistant Science

Chairperson: Kimberly Cavanagh, DHSc, MPAS, PA-C

INTRODUCTION

Physician assistants (PAs) are medical providers who are nationally certified and state licensed to practice medicine as a member of a team with other healthcare professionals. Their specific tasks vary widely due to differences among state laws and hospital policies.

Generally, PAs are qualified to obtain patient histories, perform comprehensive physical examinations, order and interpret diagnostic laboratory tests, prepare a diagnosis, implement a treatment plan for common illnesses, deliver patient education and counseling, perform certain surgical procedures, and provide emergency care. PAs may assist in surgery and deliver pre-operative and post-operative care. PAs may deliver patient care in any setting in which the physician works.

The Physician Assistant Department offers a Master of Physician Assistant Science degree available through either a five-year undergraduate admission program or a post baccalaureate curriculum. The curriculum is predominantly clinical during the final year of the program. Regional clinical faculty preceptors, in conjunction with various health care institutions, introduce the students to professional PA training. Clinical sites are offered primarily in northwestern Pennsylvania, Ohio, and western New York, as well as some locations farther afield. Students are responsible for their own housing and transportation to and from clinical sites.

The PA program curriculum of the Gannon University Physician Assistant Program is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA).

The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) has granted **Accreditation-Continued** status to the **Gannon University Physician Assistant Program** sponsored by **Gannon University**. Accreditation-Continued is an accreditation status granted when a currently accredited program is in compliance with the ARC-PA *Standards*.

Accreditation remains in effect until the program closes or withdraws from the accreditation process or until accreditation is withdrawn for failure to comply with the *Standards*. The approximate date for the next validation review of the program by the ARC-PA will be **March 2027**. The review date is contingent upon continued compliance with the Accreditation *Standards* and ARC-PA policy.

OUTCOMES/OBJECTIVES

Upon completion of the Physician Assistant Program the student will be able to:

- Perform a complete and accurate history and physical examination; identify abnormal findings and develop an appropriate differential diagnosis
- Develop a plan of evaluation in support of the differential diagnosis, including specialized diagnostic imaging, and pathologic modalities
- Develop a treatment plan consisting of surgical and medical interventions including non-pharmacological modalities such as physical therapy, counseling and patient education through analysis of clinical and laboratory data
- Accurately relate the clinical data to the other members of the health care team, forming a collaborative effort to assure maximal patient benefit through a multi-disciplinary approach
- Show proficiency in performing clinical skills
- Identify characteristics of professional and ethical conduct for the Physician Assistant Profession
- Synthesize theory and research in order to provide advanced care to patients

ADMISSION REQUIREMENTS

ADMISSION REQUIREMENTS FOR POST-BACCALAUREATE OPTION:

Applications for the post-baccalaureate option will be reviewed on a space available basis. Prospective students may contact the Gannon University Office of Graduate Admissions for additional information.

Applicants must possess a baccalaureate degree. A minimum GPA of 3.0 is required from previous professional education and prerequisites must have been completed within the last seven years. As part of the application process, applicants must submit recommendation letters from three evaluators and participate in an in-person interview. In addition, applicants must submit the following: official transcripts, curriculum vitae and 30 hours of documented volunteer/paid medical experience.

TECHNICAL STANDARDS

A candidate for admission to the PA Program must have the use of certain sensory and motor functions to permit them to carry out the activities described in the sections that follow. Graduation from the program signifies that the individual is prepared for entry into clinical practice or into postgraduate training programs. Therefore, it follows that graduates must have the knowledge and skills needed to function in a broad variety of clinical situations and to render a wide spectrum of diagnostic and therapeutic care. The candidate and student must be able consistently, quickly, and accurately to integrate all information received by whatever sense(s) are employed. Also, they must have the intellectual ability to learn, integrate, analyze, and synthesize data.

A candidate for the PA Program ordinarily must have the following abilities and skills as explained below: observation; communication; motor; intellectual, conceptual, integrative, and quantitative; and behavioral and social. Where technological assistance is available in the program, it may be permitted for disabilities in certain areas. Under all circumstances, a candidate should be able to perform the following tasks in a reasonably independent manner:

I. *Observation*: Candidates and students ordinarily must have sufficient vision to be able to observe demonstrations, experiments, and laboratory exercises. They must be able to observe a patient accurately at a distance and close at hand.

II. *Communication*: Candidates and students ordinarily must be able to communicate with patients and colleagues. They should be able to hear, but if technological compensation is available, it may be permitted for some handicaps in this area. Candidates and students must be able to read, write, and speak English.

III. *Motor*: Candidates and students ordinarily should have sufficient motor function such that they are able to execute movements reasonably required to provide general care and emergency treatment to patients. Examples of emergency treatment reasonably required of physician assistants is cardiopulmonary resuscitation, administration of intravenous medication, the application of pressure to stop bleeding, the opening of obstructed airways, the suturing of simple wounds, and the performance of simple obstetrical maneuvers. These actions require coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses of touch and vision.

IV. *Intellectual, Conceptual, Integrative, and Quantitative Abilities:* These abilities include measurement, calculation, reasoning, analysis, and synthesis. Problem solving, the critical intellectual skill demanded of a physician assistant, requires all of these intellectual abilities. In addition, candidates and students should be able to comprehend three-dimensional relationships and understand the spatial relationships of structures.

V. *Behavioral and Social Abilities*: Candidates and students must possess the emotional health required for full utilization of the intellectual abilities, the exercise of good judgment, the prompt completion of all responsibilities attendant to the assessment and care of patients, and the development of mature, sensitive, and effective relationships with patients. Candidates and students must be able to tolerate physically taxing workloads, adapt to changing environments, display flexibility, and learn to function in the face of uncertainties inherent in the clinical problems of many patients. Compassion, integrity, concern for others, interpersonal skills, interest, and motivation are all personal qualities to be assessed during the admissions and educational processes.

The PA Department is committed to providing reasonable accommodations to students with an identified disability as defined by the Americans with Disability Act. In doing so, however, the PA Department must maintain the integrity of its curriculum and preserve those elements deemed essential to educating candidates to become effective physician assistants.

Students in the PA Program must be of sufficient health and be able to obtain all required clearances (criminal, child abuse and FBI Background checks annually) to meet the criteria of the program and our clinical affiliates. The PA Department reserves the right to reassess the student's ability to meet the program requirements and technical standards at any time during the duration of their training and to act accordingly.

EMPLOYMENT POLICY

Employment during the didactic phase of the PA program is not recommended. Demanding courses and time constraints are to be expected. Employment during the clinical phase of the PA Program is strongly discouraged. Students will spend an average of 40 hours a week on clinical site, plus complete reading assignments in order to prepare for end of rotation exams. Students may need to relocate every five weeks, precluding steady employment. Students who choose to work may jeopardize performance and continuation in the program.

MASTER OF PHYSICIAN ASSISTANT SCIENCE CURRICULUM

5 YEAR OPTION

Graduate Phase Only
(See the undergraduate catalog for the complete curriculum.)

Summer (start of Graduate phase)

GPHAS 600	Pre-Rot Lec Series Lab	1
GPHAS 601	Pre-Rot Lec Series	4
GPHAS 602	Bus Prac and Cur Iss for PAs	2
GPHAS 614	General Surgery Rotation	5
Total		12

Fifth Year
Fall

GPHAS 616	Clinical Research	4
GPHAS 617	Family Medicine Rotation I	5
GPHAS 618	Family Medicine Rotation II	5
Total		14

Spring

GPHAS 619	Family Medicine Rotation III	5
GPHAS 621	Emergency Med Rotation	5
GPHAS 622	Fam Med Rotation IV	5
Total		15

Summer

GPHAS 623	Elective Rotation I	5
GPHAS 624	Elective Rotation II	5
GPHAS 631	Research/ Project Guidance	2
GPHAS 634	Clinical and Professional Capstone	2
Total		14

POST BACCALAUREATE OPTION

PREREQUISITES

Following are prerequisites for the Post-Baccalaureate Option and must be completed prior to enrolling:

- Major Level Biology 8 Credits
- Chemistry 8 Credits
- Medical Terminology (or demonstrated competency) 3 Credits
- Psychology 3 Credits
- Statistics 3 Credits

Prerequisite and undergraduate courses will not be accepted if they have been completed over seven years prior to enrollment. Advanced standing is not granted in the graduate phase of the program. No credits are awarded for experiential learning.

Undergraduate Courses

BIOL 365	Human Anatomy	3
BIOL 366	Human Anatomy Lab	1
BIOL 368	Human Physiology	3
BIOL 369	Human Physiology Lab	1
BIOL 378	Medical Microbiology	3
BIOL 379	Medical Microbiology Lab	1
BIOL 232	Human Genetics	3
PHAS 363	The Research Process	3
Total		18

Fall Semester

GPHAS 511	Physical Diagnosis I	5
GPHAS 513	Physical Diag Lab II	1
GPHAS 514	Medical Lecture Series I	3
GPHAS 524	Pharmacotherapeutics I	3
GPHAS 531	Clinical Science 1	3
GRADS 541	Intro to Radiology	3
Total		18

Spring Semester

GPHAS 508	Behavioral Medicine	1
GPHAS 515	Medical Lecture Series II	6
GPHAS 516	Physical Diag Lab III	1
GPHAS 525	Pharmacotherapeutics II	2
GPHAS 532	Clinical Science II	2
GPHAS 538	PEDS/OB/GYN Lec Series	4
GPHAS 545	Problem Based Medicine	2
Total		18

Summer Semester

GPHAS 601	Pre-Rot Lec	4
GPHAS 600	Pre-Rot Lec Lab	1
GPHAS 602	Bus Prac and Cur Iss for PAs	2
GPHAS 614	General Surgery Rotation	5
Total		12

Fall Semester

GPHAS 616	Clinical Research	4
GPHAS 617	Family Medicine Rotation I	5
GPHAS 618	Family Medicine Rotation II	5
Total		14

Spring Semester

GPHAS 619	Family Medicine Rotation III	5
GPHAS 621	Emergency Medicine Rotation	5
GPHAS 622	Family Medicine Rotation IV	5
Total		15

Summer Semester

GPHAS 623	Elective Rotation I	5
GPHAS 624	Elective Rotation II	5
GPHAS 631	Research/ Project Guidance	2
GPHAS 634	Clinical and Professional Capstone	2
Total		14

COURSE DESCRIPTIONS

GPHAS 508 Behavioral Medicine
1 credit
Prerequisite: GPHAS 514
This course is designed to introduce the students to the major mental health conditions including adolescent and childhood disorders. Special attention will be given to disease characteristics, etiologies and applicable behavioral and pharmacological treatments.

GPHAS 511 Physical Diagnosis I
5 credits
The techniques of history-taking, discussion and demonstration of normal physical findings with various organ systems and alteration of physical signs in disease states are introduced to the student. The relationship of physical signs to altered physiology is emphasized.

GPHAS 513 Physical Diagnosis Lab II
1 credit
Designed to complement the physical diagnosis lectures, this course enables students to develop skills in performing histories and physical examinations on fellow students.

GPHAS 514 Medical Lecture Series I
3 credits
Symptoms, signs and abnormal body function are taught in a problem-oriented manner, including a logical method, relevant diagnostic maneuvers, possible therapeutic intervention and patient

education. The lectures complement the knowledge acquired in Physical Diagnosis and is correlated with the Pharmacology and Clinical Science courses.

GPHAS 515 Medical Lecture Series II
6 credits
Prerequisite: GPHAS 514
A continuation of GPHAS 514

GPHAS 516 Physical Diagnosis Lab III
1 credit
Prerequisites: GPHAS 511; and GPHAS 513
In addition to performing histories and physical examination on hospitalized or nursing home patients, the student is exposed to a wide variety of frequently encountered medical problems and begins to develop a basic understanding of pathophysiology. In addition the student will develop a methodology for approaching any medical complaint.

GPHAS 524 Pharmacotherapeutics I
3 credits
This course is designed to provide both basic information regarding the pharmacology of many commonly used medications coupled with a practical and systematic approach to the selection of appropriate drug therapy for patients. Two major areas of focus are a review of the principles of therapeutics (e.g., pharmacokinetics and pharmacodynamics) and a review of recommended drug therapy for common medical disorders (e.g., hypertension, peptic ulcer disease). Students will be instructed on a process through which they will think pharmacotherapeutically – that is, to identify a disease, review the drugs available to treat that disease, select treatment based upon goals of therapy and specific patient parameters and how to adjust therapy if required. Also, all lectures are coordinated with Medical Lecture Series such that medications are reviewed in close proximity to lectures on pathophysiology in order to enhance the learning experience for students.

GPHAS 525 Pharmacotherapeutics II
2 credits
Prerequisite: GPHAS 524
A continuation of GPHAS 524

GPHAS 531 Clinical Science I
3 credits
This course is designed to provide a basic understanding of the pathophysiology and clinical diagnostic methods involved in the evaluation of common disease processes. Emphasis is placed on understanding molecular structure and function as it applies to application and interpretation of clinical testing for diagnostic/therapeutic purposes. Topics include hematology, immunology and serology, medical microbiology, virology, clinical chemistry, urine studies and pertinent genetic testing. Lectures correlate with Physical Diagnosis I and II, Medical Lecture Series I, Pharmacotherapeutics I and Radiology in a systems-oriented approach to the disease processes.

GPHAS 532 Clinical Science II
2 credits
Prerequisite: GPHAS 531
A continuation of GPHAS 531, this course is designed to provide a basic understanding of the pathophysiology and clinical diagnostic methods involved in the evaluation of common disease processes discussed in Medical Lecture Series II and Pharmacotherapeutics II. Topics continue from Clinical Science I and include parasitology, arterial blood gas interpretation, electrocardiography interpretation and fluid, electrolyte and acid-base balance.

GPHAS 538 Pediatrics/Obstetrics/Gynecology Lecture Series
4 credits
Prerequisite: GPHAS 514
This course will discuss common disease process in Obstetrics/Gynecology and Pediatrics in a problem oriented manner to enable the student to incorporate knowledge of pathogenesis, clinical findings, appropriate laboratory and diagnostic testing and create a treatment plan for each disease process.

GRADS 541 Introduction to Radiology
3 credits
This course is designed to introduce the Physician Assistant student to radiology, computerized tomography (CT), and magnetic resonance imaging (MRI). The focus of the class will include technical, anatomical and pathologic considerations.

GPHAS 545 Problem Based Medicine
2 credits
Prerequisite: GPHAS 514
This course offers the student an introduction to evidence based medicine. Emphasis will be placed on clinical problem solving through a case study approach. The student will be instructed to incorporate knowledge of pathogenesis, clinical findings, laboratory and other diagnostics to develop a differential diagnosis. This approach is designed to initiate critical thinking about medical problems and incorporation of treatment plans.

GPHAS 590 Special Topics
3 credits
This is an elective course which will cover topics of special interest.

GPHAS 600 Pre-Rotation Lecture Lab
1 credit
Prerequisites: Successful completion of PHAS 408-445 or GPHAS 508-545
This laboratory section is designed to complement and integrate the Pre-Rotation Lecture Series course in the Physician Assistant Program. The laboratory experiences will supplement many of the lectures and afford students hands-on opportunities to practice clinical skills such as gowning and gloving, injections, phlebotomy, IVs, urinary catheterization, casting, knot tying, and suturing. Clinical experiences include use of the Patient Simulation Center, CPR/ACLS certification and OR orientation.

GPHAS 601 Pre-Rotation Lectures and Skills
4 credits
Prerequisites: Successful completion of PHAS 408-445 or GPHAS 508-545
This capstone course is designed to complement and integrate the Liberal Studies academic experience and didactics of the pre-professional phase of the Physician Assistant Program. Students are expected to demonstrate their capacity to utilize concepts and methodologies presented in previous Liberal Studies courses as we explore the issues related to medical ethics. Issues explored will include but not be limited to the patient and health care provider relationship, human experimentation, reproductive and dying technology. Topics in the areas of Emergency Medicine, Orthopedics, and Surgery will be discussed utilizing the foundation of information previously presented in the didactic pre-professional phase.

GPHAS 602 Business Practices and Current Issues for Physician Assistants
2 credits
Prerequisites: Successful completion of PHAS 408-445 or GPHAS 508-545
This course is designed to introduce the Physician Assistant student to practice management in the clinical setting. Emphasis is placed on understanding health insurance coverage, cost containment and the quality of health care. Diagnosis and procedure coding will be introduced and legal issues related to the clinical setting are addressed.

GPHAS 614 General Surgery Rotation
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five-week clinical experience is designed to allow the student exposure to a wide variety of acute surgical problems. Under supervision, the student is expected to participate in preoperative and postoperative patient care. This experience will include taking histories, performing physical examinations, and assisting in the emergency department and operating room.

GPHAS 616 Clinical Research
4 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This is a four-week rotation in which students participate in medical research under the direction of a preceptor or develop a community health project. This project may involve reviewing charts, interviewing patients, reviewing existing data, collecting data and/or participating in ongoing clinical trials or educating the public. Students are required to complete a project outline and will begin to compose a research or project paper of publishable quality. The students will begin to develop a power point presentation in order to illustrate their research or project.

GPHAS 617 Family Medicine Rotation I
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five-week clinical experience is designed to familiarize the student with all aspects of Family Practice in ambulatory, inpatient and long-term care settings. The student, through the collection and acquisition of historical, physical and laboratory data, develops an understanding of patient evaluation and treatment under the supervision of physicians or mid-level practitioners. This clinical rotation will emphasize aspects of Internal Medicine and the unique characteristics of the care of the geriatric patient.

GPHAS 618 Family Medicine Rotation II
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five-week clinical experience is designed to familiarize the student with all aspects of Family Practice in ambulatory, inpatient and long-term care settings. The student, through the collection and acquisition of historical, physical and laboratory data, develops an understanding of patient evaluation and treatment under the supervision of physicians or mid-level practitioners. This clinical rotation will emphasize normal variations of growth and development of children from infancy to adolescence, as well as, exposure to acute and chronic illnesses of childhood.

GPHAS 619 Family Medicine Rotation III
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five-week clinical experience is designed to familiarize the student with all aspects of Family Practice in ambulatory, inpatient and long-term care settings. The student, through the collection and acquisition of historical, physical and laboratory data, develops an understanding of patient evaluation and treatment under the supervision of physicians or mid-level practitioners. This clinical rotation will emphasize routine gynecologic care and common complaints as well as prenatal care of the female patient. This experience will also focus on common behavioral health disorders encountered in primary care.

GPHAS 621 Emergency Medicine Rotation
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five-week clinical experience is designed to stress the evaluation and management of both medical and surgical problems of the ambulatory patient in an acute care situation. Students gain experience in the initial evaluation of patients in the emergency setting, perform problem specific examinations, practice minor surgery skills, and participate in the management of orthopedic problems.

GPHAS 622 Family Medicine Rotation IV
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five-week clinical experience is designed to familiarize the student with all aspects of Family Practice in ambulatory, inpatient and long-term care settings. The student, through the collection and acquisition of historical, physical and laboratory data, develops an understanding of patient evaluation and treatment under the supervision of physicians or mid-level practitioners. This clinical rotation will emphasize the evaluation and treatment of conditions common at the primary care level and the appropriate health maintenance measures for different age groups from infancy to geriatrics.

GPHAS 623 Elective Rotation I
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five-week clinical experience is designed to acquaint the student with the role of the physician assistant in practice. Students train under the supervision of a physician or mid-level provider in an office/or hospital setting. Through this clinical rotation the student will gain an in-depth exposure to a wide spectrum of acute and chronic patient problems. This experience can occur in a clinical area that has already been experienced by the student or a specialty area of the student's choosing.

GPHAS 624 Elective Rotation II
5 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
This five- week clinical experience is designed to acquaint the student with the role of the physician assistant in practice. Students train under the supervision of a physician or mid-level provider in an office/or hospital setting. Through this clinical rotation the student will gain an in-depth exposure to a wide spectrum of acute and chronic patient problems. This experience can occur in a clinical area that has already been experienced by the student or a specialty area of the student's choosing.

GPHAS 631 Research/Project Guidance
2 credits
Prerequisites: Enrollment in or successful completion of GPHAS 600, GPHAS 601, GPHAS 602
Students complete a research project (including analysis of data and reporting results) using the scientific method to answer a question in clinical practice, under the direction of a research/project advisor. Projects may use a variety of methodologies. Students will finalize a power point presentation and/or poster for presentation or display at the annual research symposium.

GPHAS 634 Clinical and Professional Capstone
2 credits
Graduation from an accredited PA program qualifies an individual to take the Physician Assistant National Certification Examination (PANCE). Successful completion of PANCE is mandatory for clinical practice as a PA. As the student works to achieve professional status as a PA, the Clinical and Professional Capstone allows for an opportunity to merge the clinical rotation experience with classroom learning through a high yield didactic approach and culminating with the program Summative Examination. The course will provide a comprehensive overview of requisite knowledge for the graduating PA student. Emphasis will be placed on identified organ systems and task areas that are consistent with the NCCPA Examination Content Blueprint for the PANCE. Additionally, the Clinical and Professional Capstone will focus on the application of knowledge and skills for clinical practice case study and evidence-based medicine facilitating the transition from student to medical provider.

Public Administration

Director: Mengzhong Zhang, Ph.D.

INTRODUCTION

Public Administration involves the study of the management of governmental and not for profit entities. It is the who, when, where and how policies are formulated, implemented, and evaluated. It is where campaign promises are carried out (or not). Gannon University's Master of Public Administration Program provides students with the tools they need to be able to be successful as a public administration professional and can be completed on a full or part time basis.

Public administration is a rapidly changing field where new ways of doing things are continually proposed and where politics and values are always in flux. Public administrators are held to high standards to be accountable, to be ethical, to be efficient and effective, and to be responsive to their constituents. Recent dramatic changes in the worlds of politics, government, international relations, not-for-profits, and the private sector have cast a new light on the importance of leadership within the public sector.

The urgency for leadership studies and development has never been greater. A commitment to instilling qualities of leadership in students lies at the heart of a Gannon University education. That long-standing focus on leadership has become even more intense through development of new academic programs and scholarships that will uniquely position Gannon graduates to take leadership roles in fields that will be most in demand in the next century. Governments, agencies, foundations, and authorities are seeking highly motivated individuals with communication, critical analysis, marketing, finance, strategic planning abilities, grant writing experience, program development capabilities, organizational skills, and the ability to solve problems creatively.

Gannon is a student-oriented, value-centered teaching university. This philosophy guides our approach to teaching, advising, and designing our curriculum. We work closely with students on an individual basis, challenging students to grow while ensuring they meet their personal objectives. Courses are rigorous and challenging by design, but we work with students to build the skills they need for the world of the new millennium.

What are the origins of public administration? How has public administration evolved and changed? What motivates human behavior? What are the differences and similarities between public, private, and nonprofit management? What are the various theories of organization? What is the science of "muddling through"? How are policies formulated and implemented? What is strategic planning and how is it done? How are budgets and financial statements created? How do we evaluate programs? What role do ethical considerations play in public administration and what tools exist to help "good people make tough choices"? These are some of the questions that students will grapple with during time studying the field of public administration at Gannon.

Our central location to city, county, state, and federal government offices makes Gannon University a virtual public administration laboratory. Our close proximity allows for continuous interaction with government and agency leaders who visit classes on a regular basis and often serve as instructors themselves. This is a program in which real world case studies are often the focus of seminar deliberations and class projects. In addition, internship opportunities abound. This practical experience adds balance to academic life.

MISSION OF THE MPA PROGRAM

Gannon's MPA program:

- Prepares its graduates to be competent administrators, professionals and leaders in public and nonprofit organizations, domestically and internationally.
- Educates socially responsible world citizens through civic and community engagement and innovation and develops a worldview by infusing international perspectives and activities into the curriculum.
- Is dedicated to emphasizing public service values such as public interest, efficiency, effectiveness, democratic representation and participation, equity, diversity, sustainability, and accountability.

OUTCOMES OF MPA PROGRAM

As the basis for its curriculum, the program will adopt a set of required competencies related to its mission and public service values. The required competencies will include five domains: the ability

- to lead and manage in public governance;
- to participate in and contribute to the policy process;
- utilize quantitative methods to analyze, synthesize, think critically, solve problems and make decisions;
- to articulate and apply a public service perspective;
- to communicate and interact productively with a diverse and changing workforce and citizenry

ADMISSION REQUIREMENTS

- A Bachelor's degree in any discipline from an accredited college or university
- A completed application for admission
- Transcripts from all prior institutions attended

- TOEFL or IELTS scores if English is not a first language
- Students may also be offered "Provisional Acceptance" if their GPA is a minimum of 2.7. Provisional acceptance requires students to earn a minimum of a 3.0 average in the first three Core classes completed in the program within two consecutive semesters. If a student does not earn a minimum grade of "B" in each of the first 9 credits, they will not be permitted to register for further MPA courses.
- Three letters of recommendation

While applications may be submitted at any time, Gannon reviews applications on a rolling basis. Please contact our admissions representative to discuss details about our next start date and how to apply. Students must complete the application process prior to the start date of a given session.

INTERNSHIPS AND COOPERATIVE EDUCATION

In consultation with the Director of Graduate Programs, students may accept field placements related to their interests and academic studies. Placements range from short-term assignments to full-time positions. If students are looking for experience, internships complement book learning and classroom lectures and are also a great resume builder. If interested, students can consult the Director of Graduate Programs. In some circumstances, elective credits are awarded for these placements.

STEM DESIGNATION

Gannon University's MPA program is a STEM designated graduate program.

WHAT IS A STEM DESIGNATED DEGREE PROGRAM?

A STEM designated degree program is an academic program that falls under one or more of the approved categories from the United States Department of Homeland Security (DHS). The DHS has a published list of programs that can be classified as STEM designated which can be viewed online.

WHAT DOES THE STEM DESIGNATION MEAN?

The programs in the STEM designated list have been recognized by the government for their focus on science, technology, engineering, and math (STEM) topics. The STEM designation also has special implications for international students who are studying in the United States on a student F-1 visa. For most international students, there is an opportunity to complete work experience following the completion of their degree through a program called Optional Practical Training (OPT). The standard duration for OPT is 12 months. However, if the student has completed a STEM approved program, OPT can be extended by as much as 24 months for a total of 36 months. For any clarification of the I-20 purpose, please contact Gannon University's Office of Global Admissions and Outreach.

CURRICULUM REQUIREMENTS

The MPA is a professional degree program. Each student begins studies with a wide variety of academic and work backgrounds. As such, the design of the curriculum is dependent upon your experiences and academic background.

The MPA curriculum requires 36 credits and is outlined as follows:
Core Curriculum (27 credits)

This series is designed to give you the basic principles and theories of public administration along with the necessary skills to help students succeed in public administration.

The MPA program is fully face to face on ground program.

MPA Curriculum (36 credits)

GMPA 510	Introduction to Public Administration	3
GMPA 520	Administrative Ethics	3
GMPA 530	Public Personnel Administration	3
GMPA 540	Applied Statistics for Public and Nonprofit Administration	3
	or	
GOLL 806	Fundamentals of Applied Statistics	3
GMPA 532	Public Budgeting and Finance	3
GMPA 533	Public Organizations and Management	3
GMPA 630	The Public Policy Cycles	3
GMPA 799	Research in Public Administration	3
GMPA 797	Public Administration Capstone Project	3
GMPA	Electives	9

Four Concentrations

[Each concentration requires three courses (9 credits).]

1. Global Public Administration (GPA)
   (any of the below <u>three</u> courses)
   - GMPA 591 Global Comparative Public Administration (3) (new course)
   - GMPA 592 Globalization and World Politics (3) (new course)
   - GMPA 593 Current Issues in Global Public Administration (3) (new course)
   - GMPA 798 Internship (3) (existing course)

2. Organizational Learning and Leadership (OLL)
   (any of the below <u>three</u> courses)
   - 3 OLL classes at the recommendation of the MPA Program Director and the OLL PhD Director
   - GMPA 798 Internship (3) (existing course)

** In this concentration students can choose existing OLL PhD program courses if they want to pursue the PhD in the future and get a jump-start on that degree program.

3. Nonprofit Organization and Management
   - GMPA 512 Introduction to Nonprofit Organization and Management (3)
   - GMPA 594 Nonprofit Management and Leadership (3)
   - GMPA 595 Resource Development for Nonprofit Organizations (3)

4. Customized Concentration
   (any three graduate courses, 9 credits)
   This special customized concentration is tailored to the scholarly or professional development need of the student. In this concentration, a student can take any three graduate courses (9 credits) offered by Gannon University, with the approval of the MPA program director as well as the "home" program (where concentration courses are offered) director.

Students should consult with the Program Director to determine a systematic plan including their choice of electives and a research project given their prior course work, their areas of interest, and their future career plans.

MPA 4+1 Plus Program
Senior undergraduate students at Gannon University can join the 4+1 Master of Public Administration (MPA) Program. Undergraduate students may take up to four 3-credit MPA graduate courses in their senior year. To complete the remaining graduate coursework in one calendar year, students must enroll in the summer semester immediately following graduation. For all inquiries, please contact the MPA program director.

COURSE DESCRIPTIONS

500 SERIES COURSES
GMPA 510 Introduction to Public Administration
3 credits
Prerequisite: This course should be taken in the first 18 credits of the MPA program.
This introductory course is set within the context of contemporary, political, social, and economic realities. It examines the policies and processes of governmental, nonprofit, and institution based programs from a multidisciplinary perspective. Students are introduced to the field and profession of public administration. Students also develop a broad understanding of the public sector while learning to think and act as an ethical public administration professional.

GMPA 520 Administrative Ethics
3 credits
The primary goals of this course are to: (a) introduce students to the role that ethics should play in the lives of public administrators in various capacities, and (b) provide tools and strategies for identifying and addressing ethical issues in professional life.

GMPA 530 Public Personnel Administration
3 credits
This course covers human resources administration in public and nonprofit settings, including human resource planning, staffing, development, and compensation. Behavioral and environmental determinants are examined, including market factors, service delivery, and government regulations and policies.

GMPA 532 Public Budgeting and Finance
3 credits
This course provides an introduction to public budgeting and finance. The budgetary process is, perhaps, the most important and fundamental component of the public policy process and democratic governance. Funding for public programs is inseparable from their operation (and existence). Furthermore, the sources of revenue for public programs can play an important role in the design of government spending. Since the budgetary process is inherently political we can understand it as both a political document and a management tool. Simply put, budgets are an expression of societal values. It is necessary, therefore, for public managers to possess the knowledge and skills required to understand the key principles of public budgeting and finance.

GMPA 533 Public Organizations and Management
3 credits
This course explores theories of organizational behavior and performance as applied to public and nonprofit sector agencies, including legal constraints associated with leading public sector organizations, organizational authority systems, relationships between public and private organizations, development and fulfillment of organizational mandates in the public sector, and use of resources within organizations.

GMPA 540 Applied Statistics for Public and Nonprofit Administration
3 credits
Statistical tools and techniques used to inform policy analysis and management decision-making. Covers descriptive statistics, graphing data, confidence intervals, hypothesis testing, correlation, cross-tabulation, mean comparison with significance testing, and an introduction to multivariate linear regression. The course encourages hands-on work with real data, use of statistical software, and the effective presentation of statistical information.

GMPA 591 Global Comparative Public Administration
3 credits
Global Comparative Public Administration is an elective course in the Gannon University's MPA program. This 3-credit course focuses on providing an introduction to the field of global comparative public administration, with primary focus on national administrative systems including reforms and capacity building efforts. This course covers contents of scope and history of global comparative public administration, focus for comparison, global public administration, concepts of system transformation, historical antecedents of national

administrative systems, bureaucracy, comparative research and methods, administration in developed and less developed nations and an overview of bureaucracies.

GMPA 592 Globalization and World Politics
3 credits
How do the leaders of sovereign nation-states formulate their foreign policies and advance their nation's interests in a world characterized by increasing globalization? How much policy-making freedom to they have when faced with global constraints beyond their control? How do they respond to their domestic constituents while advancing multilateral efforts to address global issues? Does the nation-state still matter? Do policy choices reflect national identities? Does culture determine who one perceives as friends or enemies? Is there a difference in the behavior and policies of dictatorships compared to democracies? These are some of the questions that will be investigated in this course.

GMPA 593 Current Issues in Global Public Administration
3 credits
This course explores the global contours of economic, political, technological, security, cultural, migration, language, and environmental aspects of globalization. It will also look at the history of globalization by tracing the flows of commodities, people and ideas across geographic and ideological boundaries. An overarching theme will be the various ways in which globalization is supported by political and extra-political institutions and coordinated between different groups and cultures in a dynamic environment. In addition, the course will examine the often overlooked cultural dimensions of globalization, as well as its many counter-narratives of critique and discontent. Finally, we will consider the political backlash, at both the domestic and international levels, engendered by these globalizing processes and the future of the nation-state.

GMPA 594 Nonprofit Management and Leadership
3 credits
Through extensive reading and site visits, you will explore the many challenges facing nonprofits and examine the functions and roles of nonprofit staffs and boards. You will also reflect on the similarities and differences between the business, government, and nonprofit sectors and the effective ways in which these three sectors collaborate.

600 SERIES COURSES
GMPA 630 The Public Policy Cycles
3 credits
This course introduces students to the public policy process and its key institutions and actors (such as legislative bodies, chief executives, administrative agencies, courts, interest groups, advocacy coalitions, and the media). The course emphasizes key parameters of public policy formulation (agenda setting, policy formulation and design, implementation, evaluation) and theories of policy change. Students will be able to differentiate policy types and tools, effectively use evidence in shaping public policy, and will appreciate the importance of context (social, economic, political, and technological) in developing effective policies.

700 SERIES ELECTIVES
GMPA 798 Internship
3 credits
Prerequisite: Permission of the Director of Graduate Programs
Students are placed in work roles that are related to their professional interests and supervised by both a faculty member and a field coordinator.

GMPA 799 Research in Public Administration
3 credits
Prerequisites: GMPA 540 Applied Statistics for Public and Nonprofit Administration or GOLL 806 Fundamentals of Applied Statistics
This course discusses theory and limits of scientific inquiry, focusing on quantitative methods compared to qualitative methods of analysis, and research design and implementation. The class will encourage critical analysis of the research underlying policy recommendations and introduce students to a wide variety of social science research techniques and assists them in developing their own research projects.

GMPA 797 Public Administration Capstone Project
3 credits
Prerequisite: This course can only be taken in the last semester of the student's study in the MPA program.
The Capstone provides students with an opportunity to integrate learning from various courses with applied analysis of real-world issues. Students work individually under the guidance of a faculty member to develop a research design, carry out data collection and analysis, evaluate their findings, and provide conclusions and recommendations. The outputs are a project report and presentation to fellow students, faculty members, and invited guests. The capstone seminar serves as a culminating experience in the MPA program.

The course allows students to draw on material presented throughout the curriculum to develop and conduct an applied research project on a topic salient to public or nonprofit administration. This seminar will prepare students to use the skills they have developed throughout the program to analyze and solve key public management and policy problems. Students will complete practical analytic papers

suitable for publication or public consumption as their key graded assignment. These papers demonstrate each student's abilities and their collective body of skills and knowledge acquired throughout the MPA curriculum. The capstone project challenges students to clearly articulate a research question, identify best practices in the field through a literature review, and develop and execute a research protocol, in which the student:

- Defines a research question that addresses an existing public or nonprofit problem.
- Identifies a theoretical model through which to approach the issue.
- Selects appropriate data collection methods.
- Collects data.
- Analyzes and interprets the data.
- Develops a written report and oral presentation of the findings and recommendations.

At the conclusion of the course, students will have demonstrated effective research skills, excellent oral and written communication skills, and will have displayed the level of knowledge necessary for effectively managing a public or non-profit organization as a competent leader.

A Sample Schedule for Full-Time On Ground MPA Student
(Two Year Study Plan)

First Semester (Fall)

GMPA 510	Introduction to Public Administration	3
GMPA 530	Public Personnel Administration	3
GMPA 520	Administrative Ethics	3

Second Semester (Spring)

GMPA 540	Applied Statistics for Public and Nonprofit Administration	3
GMPA 532	Public Budgeting Systems	3
GMPA 593	Current Issues in Global Public Administration	3

Third Semester (Fall)

GMPA 591	Global Comparative Public Administration	3
GMPA 592	Globalization and World Politics	3
GMPA 799	Research in Public Administration	3

Fourth Semester (Spring)

GMPA 533	Public Organizations and Management	3
GMPA 630	Public Policy Cycles	3
GMPA 797	Public Administration Capstone Project	3

Strategic Communication

Program Director: Jennifer R. Allen Catellier, Ph.D.

INTRODUCTION

The Master of Arts in Strategic Communication prepares students for careers in various areas of communication including public relations, corporate communication, and health communication. The curriculum combines a theoretical foundation with a focus on the essential skills for communication professionals. According to the Bureau of Labor Statistics, employment in media and communication is expected to grow faster than average with about 151,500 new jobs by 2030. These jobs arise from the need to create, edit, translate, and disseminate information across a variety of platforms.*

This STEM-designated program focuses on the increasing use of technology in the field of communication while also providing a foundation for media and communication analytics.

* Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Media and Communication Occupations. https://www.bls.gov/ooh/media-and-communication/home.htm

WHAT YOU WILL LEARN

At the completion of this 30-credit program students will be able to:

1. Understand the cultural and political issues impacting the study of mediated communication in various contexts.
2. Apply communication theory and communication ethics in interpersonal, small group, team, and organizational contexts.
3. Analyze the role that media law and ethical persuasion play within the marketplace.
4. Evaluate existing research in order to examine a contemporary issue within the field of communication.
5. Critique existing professional practices and academic research to improve interaction between persons of varying religious, professional, and socio-economic backgrounds.

ADMISSION REQUIREMENTS

Applicants interested in the Master of Arts in Strategic Communication must hold a bachelor's degree from an accredited college or university. The undergraduate degree does not have to be in a communication-related field, but applicants are required to demonstrate a basic understanding and awareness of communication.

To apply:
- Submit a graduate application
- Submit final, official, transcripts from all colleges and/or universities attended
- Submit three professional letters of recommendation
- A statement of the applicant's professional and career goals (not more than 500 words).
- All application materials must be submitted to the Graduate Admissions Office no later than August 1 (for Fall admission), November 1 (for Spring admission), or May 1 (for Summer Admission).

The graduate assistantship deadline is April 15 for assistantships beginning in fall semester.

ASSISTANTSHIPS

Graduate Assistantships are available for full-time students. Potential responsibilities of Graduate Assistants are:
- Serving as teaching or research assistants with experienced faculty members
- Teaching SPCH 111:Public Speaking or other available courses
- Assisting with various programmatic duties

CURRICULUM

Graduate Program Core Courses (15 credits)
GCOMM 505 Strategic Communication Research Methods
GCOMM 525 Organizational Communication and Analysis
GCOMM 590 Strategic Communication Ethics and Law
GCOMM 610 Message Design and Media Production
GCOMM 620 Social Media Management

Choose one emphasis:
Communication Management Emphasis (Take 9 credits)
GCOMM 520 Public Relations Management
GCOMM 535 Persuasion in the Marketplace
GCOMM 550 Crisis and Risk Communication
GCOMM 615 Intercultural Communication

Health Communication Emphasis (Take 9 credits)
GCOMM 515 Health Communication
GCOMM 545 Patient-Provider Communication
GCOMM 550 Crisis and Risk Communication
GCOMM 605 Family Communication
GCOMM 615 Intercultural Communication

Capstone Courses (6 credits)
GCOMM 625 Communication Campaigns and
GCOMM 635 Communication Seminar or
GCOMM 640 Communication Internship

4+1 MA Strategic Communication Degree Program
The4+1 MA degree program is designed to allow outstanding undergraduate students the opportunity to earn both an undergraduate degree in many disciplines and a Master's Degree in Strategic Communication within a five year period. Students from any major may apply and should do so in their junior year. Working with both the undergraduate advisor and the Strategic Communication Program Director, the student will customize a schedule in which they will take 6 credits of graduate courses during their senior year. Students who successfully complete these courses will continue into the MA in Strategic Communication to complete the remaining 24 credits. Applicants to the program must have a 3.0 undergraduate GPA. Retention in the program requires that the student maintain a minimum of a 3.0 GPA for their undergraduate studies.

COURSE DESCRIPTIONS

GCOMM 505 Strategic Communication Research Methods
3 credits
Students learn to interpret and design various theoretical studies within the field of communication, highlighting multiple theoretical perspectives that inform communication scholarship. Students will learn quantitative methods for communication research and data analysis.

GCOMM 515 Health Communication
3 credits
A foundational course introducing students to communication theory and research in a variety of health communication contexts, including interpersonal, organizational, intercultural, family, and public communication.

GCOMM 520 Public Relations Management
3 credits
This course examines the application of strategic management principles to the development of public relations programs. A particular emphasis is placed on public relations as a management function internally and externally between an organization and its stakeholders. Students will examine key principles in areas of public relations including media relations, employee relations, communication relations, government relations, consumer relations, and issues management.

GCOMM 525 Organizational Communication and Analysis
3 credits
This course examines communication theory as it is applied in various organizational settings. Topics include organizational assimilation, decision-making, leadership, structure, and environment. The various audiences to which organizational communicators direct a message will also be examined. Analysis of organizational communication and structures is discussed.

GCOMM 535 Persuasion in the Marketplace
3 credits
Examines the design, form, and strategies of persuasion in the marketplace. Also considers the construction and interpretation of persuasive messages.

GCOMM 545 Interpersonal Communication: Provider-Patient Relationships
3 credits
Examines interpersonal communication between persons in various health care contexts, with specific focus on theories and research in patient-provider communication.

GCOMM 550 Crisis and Risk Communication
3 credits
This course will discuss what constitutes and causes organizational crises, how to avoid crises and assess risks, what to do when a crisis hits, and how to learn from past crises and prevent future problems. Emphasis will be placed on practical application of crisis and risk communication theory.

GCOMM 590 Strategic Communication Ethics and Law
3 credits
A study of the special laws of libel, First Amendment problems, free press vs. fair trial, copyright, ethical issues, and regulatory provisions that pertain to mass media. Various ethical theories are described, analyzed, and interpreted to better understand the process of communication.

GCOMM 605 Family Communication: Health and Aging
3 credits
Examines family communication as it evolves across one's lifetime. The theory and research focus provides students with tools to investigate and appreciate the complexities of family communication at different life stages, with specific focus on health communication literature.

GCOMM 610 Message Design and Media Production
3 credits
This course examines the application of media production principles to the development of digital content. A particular emphasis is placed on audience analysis and scriptwriting as important efficiencies in all digital production. Students will create audio, video and graphics messages. Appropriate message distribution methods will be analyzed to determine overall communication strategies.

GCOMM 615 Intercultural Communication
3 credits
Explores cultural, international and global communication as essential skills to become informed and effective professional communicators. Students research the intersection of health and environmental concerns within a global context.

GCOMM 620 Social Media Management
3 credits
This course provides students with an introduction to social media as it relates to the history, theories, ethics and practice of communication. Students will explore a diverse range of social media forms including blogs, virtual communities, wikis, mobile, and video and photo sharing sites. They will become familiar with social media research and analytics programs and understand how social media can be used as part of a strategic communication campaign.

GCOMM 625 Communication Campaigns
3 credits
Explores the use of communication campaigns to promote issues of public importance. This includes public relations efforts and public health topics. The course examines how communication campaigns are designed, implemented, and evaluated; and describes the role of communication theory and research throughout the campaign process.

GCOMM 635 Communication Seminar
3 credits
Various topics will be explored in this course depending upon the research/teaching focus of faculty and the interest/needs of students.

GCOMM 640 Communication Internship
3 credits
The communication internship provides students with practical, real-world experience in the field of communication. During an internship, students apply knowledge and skills learned in the curriculum in an environment outside the classroom. Students will maintain a journal that details their experiences at the internship and present a paper and presentation to the Graduate Program Director. Students are required to work a minimum of 150 hours to meet the credit requirements of the internship.

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