School of Professional Studies

Graduation requirements and regulations for every academic program are provided in this catalog. Degree requirements and course descriptions are subject to change. In most cases, you will use the catalog of the year you entered KU (see your academic success coach (https://edwardscampus.ku.edu/program-advisors/) for details). Other years’ catalogs

Bachelor of Applied Science in Biotechnology (http://catalog.ku.edu/professional-studies/biotechnology-bas/)
Bachelor of Arts and Bachelor of General Studies in American Sign Language and Deaf Studies (http://catalog.ku.edu/professional-studies/american-sign-language-ba-bgs/)
Bachelor of Science in Information Technology (http://catalog.ku.edu/professional-studies/information-technology-bs/)
Undergraduate Certificate in Biotechnology (http://catalog.ku.edu/professional-studies/biotechnology-ucert/)
Graduate Certificate in Advanced American Sign Language (http://catalog.ku.edu/professional-studies/advanced-american-sign-language-gcert/)
Graduate Certificate in ASL/English Interpreting (http://catalog.ku.edu/professional-studies/asl-english-interpreting-gcert/)
Graduate Certificate in Deaf Studies and Social Justice (http://catalog.ku.edu/professional-studies/deaf-studies-social-justice-gcert/)
Graduate Certificate in Foundations of Engineering Management (http://catalog.ku.edu/professional-studies/foundations-engineering-management-gcert/)
Graduate Certificate in Foundations of Project Management (http://catalog.ku.edu/professional-studies/foundations-project-management-gcert/)
Graduate Certificate in Professional Workplace Communication (http://catalog.ku.edu/professional-studies/professional-workplace-communication-gcert/)
Graduate Certificate in Science Management (http://catalog.ku.edu/professional-studies/science-management-gcert/)
Master of Engineering in Project Management (http://catalog.ku.edu/professional-studies/project-management-me-ms/)
Master of Science in Project Management (http://catalog.ku.edu/professional-studies/project-management-me-ms/)
Master of Science in Engineering Management (http://catalog.ku.edu/professional-studies/engineering-management-ms/)
Minor in Biotechnology (http://catalog.ku.edu/professional-studies/biotechnology-minor/)

Introduction

The KUEC School of Professional Studies provide high-quality academic programs, research activities, and engaged learning initiatives that meet workforce, economic, and student needs. Our work is guided by our shared commitment to the values of collaboration, innovation, and social equity as we serve our students and the community.

The School of Professional Studies is a University of Kansas academic unit designed and charged with serving the needs of non-traditional and transfer students in the Kansas City metro area and nationally. The undergraduate programs in the School of Professional Studies are interdisciplinary degree completion programs aimed at preparing students for high demand workforce needs.

In partnership with their academic success coach, it is the students’ responsibility to become thoroughly acquainted with all requirements for the degree programs in which they plan to participate. These include all university requirements, as well as the requirements of the School of Professional Studies outlined in this section of the catalog. Students are also responsible for understanding the requirements that are unique to individual programs. By taking an active role in their undergraduate education, students maximize the value of their KU experience.

The school offers undergraduate programs in:

- American Sign Language and Deaf Studies
- Biotechnology
- Information Technology

View additional undergraduate programs offered at the KU Edwards Campus (https://edwardscampus.ku.edu/academic-programs/#undergraduate).

Admission

Information on undergraduate admission standards and requirements, as well as application procedures and deadlines, is found on the School of Professional Studies Programs pages. Visit the Office of Admissions (http://admissions.ku.edu/) for information about admission to KU. Visit the Office of International Support Services (http://www.iss.ku.edu/) for information about international admissions. Students interested in pursuing a degree in the School of Professional Studies should meet with an academic success coach to learn more.

Advising

To ensure student success, all students in the School of Professional Studies will work with an academic success coach (https://edwardscampus.ku.edu/student-services/program-info/) through their time at KU. Coaches work with students from the admissions process through graduation. For advising information, contact 913-897-8539 or visit https://edwardscampus.ku.edu/student-services/program-info#coach (https://edwardscampus.ku.edu/student-services/program-info#coach).

Transfer Communities

Transfer Communities (https://edwardscampus.ku.edu/student-services/communities/) at the KU Edwards Campus are an integrated program designed to help you transition seamlessly to KUEC while you’re achieving your Associate’s Degree from your community college. These program-specific experiences will connect you to events, career conversations, faculty, staff and peers with similar goals and interests to create a true community while you pursue your degree.

University Honors Program

The School encourages qualified students to participate in the Edwards Honors Program (https://edwardscampus.ku.edu/honors/). The KU Edwards Campus Honors Program is here to help you get the most out of your college experience, whether you’re transferring from a community college honors program, or just getting started on your honors journey.

The School of Professional Studies is a University of Kansas academic unit that serves the needs of professionals in the Kansas City metro area and nationally. The graduate programs in the School of Professional
Studies are interdisciplinary terminal degree programs aimed at preparing students for high demand workforce needs.

The school offers graduate programs in:

- Advanced American Sign Language
- ASL/English Interpreting
- Deaf Studies and Social Justice
- Engineering Management
- Project Management
- Professional Workplace Communication
- Science Management

View additional graduate programs offered at the KU Edwards Campus (https://edwardscampus.ku.edu/academic-programs/#graduate).

Degree Requirements

Requirements for the completion of master’s degrees in the School of Professional Studies are governed by department- or program-specific policy, School policies and procedures, Graduate Studies policies, and the University Senate Rules and Regulations.

Information on degree requirements presented in this section is limited to the most frequently consulted policies and key milestones in the graduate career. Students will find additional information under the KU Policy Library (http://policy.ku.edu/), the Graduate Studies (https://catalog.ku.edu/graduate-studies/) and College’s graduate regulations sections of the online catalog, the academic unit’s handbook, and the University of Kansas Rules and Regulations (https://catalog.ku.edu/regulations/).

Admission

Information on graduate admission standards and requirements, as well as application procedures and deadlines, is found on the School of Professional Studies Programs pages. Visit Graduate Studies Admission (https://graduate.ku.edu/prospective-students/) for information about admission to KU. Visit the Office of International Support Services (http://www.iss.ku.edu/) for information about international admissions. Students interested in pursuing a degree in the School of Professional Studies should meet with an academic success coach to learn more.

Advising

To ensure student success, all students in the School of Professional Studies will work with an academic success coach (https://edwardscampus.ku.edu/student-services/program-info/) through their time at KU. Coaches work with students from the admissions process through graduation. For advising information, contact 913-897-8539 or visit https://edwardscampus.ku.edu/student-services/program-info/coach (https://edwardscampus.ku.edu/student-services/program-info/coach).

To ensure student success, all students in the School of Professional Studies will work with an academic success coach (https://edwardscampus.ku.edu/student-services/program-info/) through their time at KU. Coaches work with students from the admissions process through graduation. For advising information, contact 913-897-8539 or visit https://edwardscampus.ku.edu/student-services/program-info/coach (https://edwardscampus.ku.edu/student-services/program-info/coach).

Undergraduate & Graduate Scholarships and Financial Aid

The School of Professional Studies seeks to make the KU experience affordable to all students and encourages all students to explore the affordability (https://edwardscampus.ku.edu/edwards-campus-tuition-fees/) options available through KU Edwards. Additional scholarship resources can be found through the KU Edwards Financial Aid and Scholarship (https://edwardscampus.ku.edu/financial-aid-scholarships/) and Financial Aid and Scholarships (http://affordability.ku.edu/steps/index.shtml/).

Metro KC Tuition Rate

The KU Edwards Campus Metro KC Rate (https://edwardscampus.ku.edu/metrokc-tuition-rate/) offers tuition equivalent to in-state rates for Missouri residents who meet the qualifications below. No credit hour limit applies. To receive this special rate, please fill out the Metro KC Rate (http://edwardscampus.ku.edu/edwards-campus-metrokc-application/).

To receive a need-based scholarships, the student must have submitted the FAFSA form (http://www.fafsa.ed.gov/) and been determined to be eligible. Merit-based scholarships also are offered.

Additional funds may be available from the University of Kansas Financial Aid & Scholarships (http://affordability.ku.edu/).

Graduate Fellowships and Assistantships

Visit the Graduate Studies website for information about funding opportunities (http://graduate.ku.edu/funding/) for graduate students at KU.

Financial Aid and Scholarships (http://affordability.ku.edu/steps/index.shtml/) administers grants, loans, and need-based financial aid.

For information about University regulations, see Regulations (https://catalog.ku.edu/regulations/) or visit the University of Kansas Policy Library (http://www.policy.ku.edu/).

Undergraduate Regulations

Absences

A student with excessive absences may be withdrawn from the course by the Dean. Instructors may require a certain level of attendance for passing a course and may drop a student for lack of attendance without the student’s consent.

Change of School

Students with a KU cumulative GPA of 2.00 or higher (or in their first semester) can fill out a Change of School form requesting to be admitted to the School of Professional Studies, from a different KU school, through the last day of class for the current semester. Requests made after that will be for admission in the upcoming semester. This process is for active KU students. Students not admitted to KU follow the University’s admission policy.

Credit/No Credit

A Credit/No Credit option is available to all degree-seeking undergraduates. Students may enroll in one course a semester under the option if the course is not in your major or minor. For more information, visit the KU Policy Library (http://policy.ku.edu/).

Warning: Certain undesirable consequences may result from exercising the option. Some schools, scholarship committees, and honorary societies
Continued on Probation

A student whose KU cumulative grade-point average falls below a 2.0 is placed on probation for the following semester. Students with a KU cumulative GPA of 2.0 or higher are in good academic standing. Students on probation are dropped from any courses enrolled in for future semesters. Students who are dismissed may appeal the dismissal through the School of Professional Studies faculty committee. A student reinstated is returned to good standing if the KU semester grade-point average is not yet a 2.0 but progress is being made as determined by a faculty committee.

Returned to Good Standing

A student on probation is returned to good standing if the KU cumulative grade-point average is at least 2.0.

Dismissal

A student on probation is dismissed for failure to earn a KU cumulative grade-point average of at least 2.0 in the next semester of enrollment after two consecutive semesters on probation. Students are dropped from any courses enrolled in for future semesters. Students who are dismissed may appeal the dismissal through the School of Professional Studies faculty committee. A student reinstated is continued on probation and has one semester to return to good standing. Students dismissed by the School of Professional Studies may apply to another KU school or the College by completing a Change of School form.

Reinstatement after Dismissal

Students who have been dismissed may apply for readmission through the regular admissions process. Students applying for readmission after dismissal must have successfully completed any requirements set by the School of Professional Studies for readmission, if any.

Repetition of Courses

The School of Professional Studies follows the University’s course repeat and grade replacement policy.

Required Work in Residence

To earn a bachelor’s degree from KU, you must complete the last 30 hours of credit for the degree by resident study. Students may petition the dean for a waiver. Up to 6 hours of work completed at another institution may be accepted as part of the last 30 hours, if the hours are not in required courses in the major. If a student completes more than 6 of the last 30 hours at another college, they must complete additional KU course work to graduate. Transfer courses must be completed with a C or higher. Always check with your advisor concerning enrollment as part of the last 30 hours of your degree.

Transfer of Credit

CredTran (http://credittransfer.ku.edu/) is an undergraduate transfer course equivalency system that lists more than 2,200 colleges and universities from which KU has accepted transfer courses in the past. If a student’s school or course is not listed, the evaluation will be completed when the student is admitted to KU.

Courses completed at other institutions are accepted to fulfill graduation requirements (e.g., in place of specifically prescribed courses) only if they are substantially equivalent as indicated by course description, hours of credit, and prerequisites. For courses not listed on CredTran (http://credittransfer.ku.edu/), the student must submit a petition along with a course syllabus to the School of Professional Studies. Petition forms are available on the School of Professional Studies website at this location (http://business.ku.edu/services/student-academic-services/requests-petitions-transfer-credit-substitutions/).

Only transfer grades of C- or higher apply toward graduation from the School of Professional Studies.
Graduate University Regulations

The School of Professional Studies follows the regulations and policies (http://policy.ku.edu/) of the University and of Graduate Studies (http://policy.ku.edu/graduate-studies/). In some cases, School of Professional Studies policies are more restrictive than those of the broader University. Students are encouraged to work closely with their department and advisor for specifics.

The School of Professional Studies and KU Edwards Campus (https://edwardscampus.ku.edu/student-services/career-skills/) is committed to helping you accomplish your career goals, and offers resources to help you find career solutions on how to navigate the career change process, career mobility, and/or develop strategies for that first career conversation.

University Career Center

The University Career Center (https://career.ku.edu/), Summerfield Hall, Room 206, (ph: 785-864-3624), provides career counseling and services for all KU students, including students in the School of Professional Studies, both in person as well as online through Jayhawk Ready (https://jayhawkready.tuapath.com/).

Courses

ASLD 311. Introduction to Deaf Studies. 3 Hours.

Students in the course will learn about the world of the deaf in America, deaf culture, the education of deaf children, useful technology, and the integration of deaf people into the American society. This introductory course is for students interested in fields, such as audioloogy; speech-language pathology; medicine; education; school, rehabilitation and mental health counseling; psychology; interpreting; ASL and deaf studies; and for anyone with a deaf person in his or her life. This course is offered at the 300 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 611. LEC.

ASLD 312. Intersectionality and Deaf Communities. 3 Hours.

This course brings students to the next level of understanding of the impact and role of various identities within the Deaf communities on the international and national levels, following the framework of intersectionality. Intersectionality conceptualizes the various identities, ethnicities, linguistic uses and experiences of persons, groups of people, or social problems in the world of deaf. Intersectionality looks at deaf people’s overlapping identities and experiences in order to understand the complexity of prejudices they face due to their deaf, race, class, gender, sexual orientation, religion, and other identity markers. This course is offered at the 300 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 612. LEC.

ASLD 313. Social Justice and Allyship with Deaf Communities. 3 Hours.

Students are introduced to the concept of allyship as one of the tenets of social justice and the process of allyship and social justice in the Deaf communities. Allyship involves support and empowerment of individuals or people experiencing oppression. Within the Deaf communities, there are varieties of Deaf individuals or peoples, such as Deaf Blacks, Deaf Native Americans, and LGBTQI. Students will learn what it means to be an ally, a process of social justice. This course is offered at the 300 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 613. LEC.

ASLD 414. Historical Foundations of Deaf Education. 3 Hours.

This course engages in the study of the development of deaf educational policy, practice, and theory in relation to changes in social institutions and thought regarding language, education and cultural and medical models in the education of and for the deaf. It focuses on the analysis of contemporary deaf educational problems in the light of historical perspectives. This course is offered at the 400 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 614. LEC.

ASLD 428. Special Topics in Deaf Studies: _____ 3 Hours.

Students will gain an in depth understanding of the social life of deaf people by choosing an area of focus. Since this is a special topics course, students, interested in gaining knowledge through research about deaf social life, will choose a timely area of study in a field, such as anthropology, economics, geography, history, political science, psychology, and sociology. An example of a timely area of study in Deaf Studies is Deaf gain. Through an individualized course design, students may choose the approach of immersion in Deaf community, defined literature review, or other activity to gain an in depth understanding. This course is offered at the 400 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 628 if topic is the same. LEC.

ASLD 501. Introduction to the ASL/English Interpreting Profession. 3 Hours.

This course provides an introduction to interpreting as an occupation. Students will come to understand the history of interpreting along with the importance of interpersonal communication skills, professional ethics, parameters of responsibilities, community resources and legal ramifications as they relate to the interpreter. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 701. Prerequisite: ASL IV or Instructor permission. LEC.

ASLD 502. Theories of Interpreting: Co-Constructions of Meaning. 3 Hours.

This course provides an introduction to current theories in the processes of translation and interpreting through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply several theoretical constructs as they perform intra- and inter-lingual exercises. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 702. Prerequisite: ASLD 501 or ASLD 701 and ASLD 521 or 721 with a minimum of a C; B recommended or Instructor Approval. LEC.

ASLD 505. American Sign Language V (ASL V). 3 Hours.

This course is the expanded study of ASL IV with emphasis on increased conversation skills, vocabulary, storytelling, knowledge of Deaf culture and the Deaf community. Vocabulary is enhanced through the introduction of various content areas dealing with current events, world affairs, literature, the arts and abstract ideas. Students participate in group discussions, speculate, make analogies, give instructions, and express feelings and intentions. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 705. Prerequisite: ASL IV or Instructor approval. LEC.

ASLD 506. American Sign Language VI (ASL VI). 3 Hours.

This course is continuing from ASLD 505 ASL V. Students focus on discourse, variation in sign language use, and understanding how the Deaf community is part of a linguistic and cultural minority. Topics that will be covered include perspectives on Deafhood, attitudes toward Deaf people and signed languages, technology and communication. Students will expand on vocabulary by working on areas of advanced subject matter, application of non-manual markers, use of classifiers, and proper pronominalization. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit
in ASLD 706. Prerequisite: ASLD 505 or ASLD 705 or instructor approval. LEC.

**ASLD 520. American Sign Language Linguistics. 3 Hours.**
In this course, students take an analytical approach to language and the field of linguistics as it applies to American Sign Language. ASL phonology, morphology, syntax, semantics, bilingualism, language use and usage will be examined and discussed. Language samples will be viewed and analyzed for evidence of different language structures and forms. Students will also read and critique research articles pertaining to ASL and other signed languages. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 720. Prerequisite: ASL IV or instructor approval. LEC.

**ASLD 521. Discourse Analysis of ASL. 3 Hours.**
This course focuses on analysis of ASL Discourse structure and features, such as use of space for cohesion, depiction, discourse markers, and use of classifiers. The course also focuses on the use of ASL discourse in formal and informal settings. Students study the genres of dialogues, public speaking, artistic expression, debate, persuasive and narrative styles in ASL. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 721. Prerequisite: ASL V with a minimum grade of C; B recommended or instructor approval. LEC.

**ASLD 523. ASL Pragmatics and Syntax. 3 Hours.**
This course will focus on the study of syntactic structure and its interaction with meaning. Word order, lexical categories, sentence types, clause structure, topicalization and sentences with transitive, intransitive and agreement verbs are studied. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 723. Prerequisite: ASLD 520 or ASLD 720. LEC.

**ASLD 524. Visual-Gestural Communication. 3 Hours.**
Students will develop capabilities in non-verbal communication and visual gestural communication utilizing the study of gestures as a form of communication and basis for visual language. Emphasis is on learning to think visually in pictures and building production and comprehension communication skills. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 724. Prerequisite: ASLD 520 or ASLD 720. LEC.

**ASLD 530. American Sign Language Literature. 3 Hours.**
This course will provide basic introduction, discussion, and demonstration of literature in American Sign Language (ASL). Such literature involves ASL Poetry, ASL Storytelling/ Narratives, Deaf Humor, Deaf Folklore and other genres that have been passed on from one generation to another by culturally Deaf people. Students will receive, analyze and retell a variety of ASL literature. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 730. Prerequisite: ASLD IV or instructor approval. LEC.

**ASLD 588. Internship in American Sign Language and Deaf Studies. 1-3 Hours.**
This course provides opportunities for students to have direct interaction with Deaf, Hard of Hearing, DeafBlind community members in order to apply cultural, linguistic and power/privilege concepts learned in the classroom. Students must complete 50 hours per credit hour. Schedule will be determined by student and instructor. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 788. Prerequisite: Instructor approval. INT.

**ASLD 589. Research Experience in American Sign Language and Deaf Studies. 3 Hours.**
This course guides the students in reading, understanding and evaluating current research in ASL, Deaf Studies, ASL/English interpreting and related fields. Students will learn how to publish a paper and present a poster on a chosen topic of their interest. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 789. Prerequisite: Instructor approval. LEC.

**ASLD 603. Interpreting: Mediated Interactions in Communications. 3 Hours.**
This course provides an introduction to real-time interpreting in mediated interaction contexts through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply theories, decision-making and engage in reflective practice. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 803. Prerequisite: ASLD 501 or ASLD 701, ASLD 502 or ASLD 702 with a minimum grade of B or instructor approval. LEC.

**ASLD 604. Interpreting: ASL to English. 3 Hours.**
This course provides an introduction to real-time interpreting with an emphasis on ASL source materials through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply theories and engage in reflective practice. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 804. Prerequisite: ASLD 501 or ASLD 701, ASLD 502 or ASLD 702 and ASL proficiency or instructor approval. LEC.

**ASLD 605. Interpreting: English to ASL. 3 Hours.**
This course provides an introduction to real-time interpreting with an emphasis on English source materials through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply theories and engage in reflective practice. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 805. Prerequisite: ASLD 501 or ASLD 701, ASLD 502 or ASLD 702 and ASL proficiency or instructor approval. LEC.

**ASLD 606. Interpreting: Diverse Communities. 3 Hours.**
This course examines language, culture and identity and the implications when interpreting among diverse populations. Students will apply interpreting theories, decision-making and reflective practice to both monologue and dialogic materials in both ASL and English. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 806. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805 or instructor approval. LEC.

**ASLD 607. Ethics and Professionalization for Interpreters. 3 Hours.**
This course examines ethics as it relates to the work of interpreting through study of ethical codes of conduct, models of decision-making and elements of becoming an ethical professional. Students will come to understand the complexities of ethical decision-making and the importance of self-awareness, reflective practice and responsibility as they consider implications on micro and macro levels. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 807. Prerequisite: ASLD 603 or ASLD 803 or instructor approval. LEC.

**ASLD 608. ASL/English Interpreting Observation Practicum. 1-6 Hours.**
This practicum requires a minimum of 50 hours of observation, shadowing, teaming, professional responsibilities, duties, and/or activities (e.g., scheduling, preparation, invoicing, meetings, and in-service training)
in authentic settings where interpreters are employed. Discussion and analysis will occur with instructor and peers on-line and in-person throughout the semester. Prerequisite: ASLD 603 or ASLD 803 with a minimum grade of a B or instructor approval. FLD.

ASLD 609. Practicum in American Sign Language Interpreting. 1-6 Hours.
This practicum requires 250 hours of field experience which may include observation, shadowing, teaming, professional responsibilities, duties, and/or activities (e.g., scheduling, preparation, invoicing, meetings, and in-service training) in authentic settings where interpreters are employed. A minimum of 90 hours will be direct provision of interpreting under the supervision of a certified interpreter. Discussion and analysis will occur with instructor and peers on-line and in-person throughout the semester. Students will consult with their advisor prior to enrolling in the course. Students are required to complete a minimum of 3 credit hours to complete the ASLD 609 requirements. This 250 hour practicum may be completed in one semester by enrolling in 3 credit hours, or can be completed over multiple semesters. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 609. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805, ASLD 608 or ASLD 808 with a minimum grade of a B, and completion of an interpreting proficiency exam or instructor approval. FLD.

ASLD 610. Psychological Effects of Interpreting. 3 Hours.
This course examines both affective and cognitive psychological effects on interpreting practitioners. The importance of self-care, reflective practice, case-conferencing; as well as vicarious trauma, compassion fatigue, role-space, power and privilege are among topics discussed. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 810. Prerequisite: ASLD 603 or ASLD 803 or instructor approval. LEC.

ASLD 611. Introduction to Deaf Studies. 3 Hours.
Students in the course will learn about the world of the deaf in America, deaf culture, the education of deaf children, useful technology, and the integration of deaf people into the American society. This introductory course is for students interested in fields, such as audiology; speech-language pathology; medicine; education; school, rehabilitation and mental health counseling; psychology; interpreting; ASL and deaf studies; and for anyone with a deaf person in his or her life. This course is offered at the 600 and 800 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 811. Prerequisite: ASLD 603 or ASLD 803 or instructor approval. LEC.

ASLD 612. Intersectionality and Deaf Communities. 3 Hours.
This course brings students to the next level of understanding of the impact and role of various identities within the Deaf communities on the international and national levels, following the framework of intersectionality. Intersectionality conceptualizes the various identities, ethnicities, linguistic uses and experiences of persons, groups of people, or social problems in the world of deaf. Intersectionality looks at deaf people’s overlapping identities and experiences in order to understand the complexity of prejudices they face due to their deaf, race, class, gender, sexual orientation, religion, and other identity markers. This course is offered at the 300 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 312. Prerequisite: Graduate standing or Instructor permission. LEC.

ASLD 613. Social Justice and Allyship with Deaf Communities. 3 Hours.
Students are introduced to the concept of allyship as one of the tenets of social justice and the process of allyship and social justice in the Deaf communities. Allyship involves support and empowerment of individuals or people experiencing oppression. Within the Deaf communities, there are varieties of deaf individuals or peoples, such as Deaf Blacks, Deaf Native Americans, and LGBTQI. Students will learn what it means to be an ally, a process of social justice. This course is offered at the 300 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 313. Prerequisite: Graduate standing or Instructor permission. LEC.

ASLD 614. Historical Foundations of Deaf Education. 3 Hours.
This course engages in the study of the development of deaf educational policy, practice, and theory in relation to changes in social institutions and thought regarding language, education and cultural and medical models in the education of and for the deaf. It focuses on the analysis of contemporary deaf educational problems in the light of historical perspectives. This course is offered at the 400 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 414. Prerequisite: Graduate standing or Instructor permission. LEC.

ASLD 615. Business Practices for Interpreters. 3 Hours.
This course will provide students an introduction to business practices for interpreters. Concepts explored will include resume development, interview skills, invoicing, record keeping for tax purposes, certification maintenance and licensure renewal, etc. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 615. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805, ASLD 608 or ASLD 808 with a minimum grade of a B, and completion of an interpreting proficiency exam or instructor approval. FLD.

ASLD 616. Interpreting: Dynamic Paralinguistic Demands. 3 Hours.
This course examines a variety of paralinguistic demands in the context of interpreting. Types of demands will include emotional communication, accents, regional dialects, physical and mental factors (Cerebral Palsy, injuries, etc.), fast paced communication, etc. Students will apply interpreting theories, decision-making and reflective practice to both monologue and dialogic materials in both ASL and English. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 616. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805 or instructor approval. LEC.

ASLD 626. Topics in ASL Vocabulary and Discourse: ____. 3 Hours.
This course will expand the interpreter training students’ vocabulary related to specialized fields and technical contexts. Students will enhance terminology in medical, mental health, education, religion, sex, drugs/alcohol and strong language/culturally rich ASL. Students’ development of comprehension and production skills in common formal and informal settings will be emphasized. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 826 if topic is the same. Prerequisite: ASL IV or instructor approval. LEC.

ASLD 628. Special Topics in Deaf Studies: ____. 3 Hours.
Students will gain an in-depth understanding of the social life of deaf people by choosing an area of focus. Since this is a special topics course, students, interested in gaining knowledge through research about deaf social life, will choose a timely area of study in a field, such as anthropology, economics, geography, history, political science, psychology, and sociology. Through an individualized course design, students may choose the approach of immersion in Deaf community, defined literature review, or other activity to gain an in-depth understanding. This course is offered at the 400 and 600 level with additional assignments at the 600 Level. Not open to students with credit in ASLD 428 if topic is the same. Prerequisite: Graduate standing or instructor permission. LEC.
ASLD 631. Advanced American Sign Language Literature. 3 Hours.
This course analyzes and compares the various genres of American Sign Language literature. ASL poetry, narrative, humor, as well as written work by Deaf individuals and other language devices will be examined and discussed. Students will create and evaluate original work illustrating the similarities and uniqueness of ASL. Students will become familiar with well-known contributors such as: Clayton Valli, Patrick Graybill, Ella Mae Lentz, and the like. Research articles pertaining to ASL or Deaf Literature will be critiqued and discussed. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 831. Prerequisite: ASLD 530 or ASLD 730. LEC.

ASLD 638. Topics in Interpreting: ______, 3 Hours.
This course provides the opportunity for experimentation with innovative course content and learning strategies in accordance with guidelines established by faculty. Topics include interpreting in specialized settings, current trends, etc. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 838 if topic is the same. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805 or instructor approval. LEC.

ASLD 701. Introduction to the ASL/English Interpreting Profession. 3 Hours.
This course provides an introduction to interpreting as an occupation. Students will come to understand the history of interpreting along with the importance of interpersonal communication skills, professional ethics, parameters of responsibilities, community resources and legal ramifications as they relate to the interpreter. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 501. Prerequisite: ASL IV or Instructor permission. LEC.

ASLD 702. Theories of Interpreting: Co-Constructions of Meaning. 3 Hours.
This course provides an introduction to current theories in the processes of translation and interpreting through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply several theoretical constructs as they perform intra- and inter-lingual exercises. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 502. Prerequisite: ASLD 501 or ASLD 701 and ASLD 521 or 721 with a minimum of a C; B recommended or Instructor Approval. LEC.

ASLD 705. American Sign Language V (ASL V). 3 Hours.
This course is the expanded study of ASL IV with emphasis on increased conversation skills, vocabulary, storytelling, knowledge of Deaf culture and the Deaf community. Vocabulary is enhanced through the introduction of various content areas dealing with current events, world affairs, literature, the arts and abstract ideas. Students participate in group discussions, speculate, make analogies, give instructions, and express feelings and intentions. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 505. Prerequisite: ASL IV or instructor approval. LEC.

ASLD 706. American Sign Language VI (ASL VI). 3 Hours.
This course is continuing from ASLD 705 ASL V. Students focus on discourse, variation in sign language use, and understanding how the Deaf community is part of a linguistic and cultural minority. Topics that will be covered include perspectives on Deafhood, attitudes toward Deaf people and signed languages, technology and communication. Students will expand on vocabulary by working on areas of advanced subject matter, application of non-manual markers, use of classifiers, and proper pronominalization. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 506. Prerequisite: ASLD 505 or ASLD 705 or instructor approval. LEC.

ASLD 720. American Sign Language Linguistics. 3 Hours.
In this course, students take an analytical approach to language and the field of linguistics as it applies to American Sign Language. ASL phonology, morphology, syntax, semantics, bilingualism, language use and usage will be examined and discussed. Language samples will be viewed and analyzed for evidence of different language structures and forms. Students will also read and critique research articles pertaining to ASL and other signed languages. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 520. Prerequisite: ASL IV or instructor approval. LEC.

ASLD 721. Discourse Analysis of ASL. 3 Hours.
This course focuses on analysis of ASL Discourse structure and features, such as use of space for cohesion, depiction, discourse markers, and use of classifiers. The course also focuses on the use of ASL discourse in formal and informal settings. Students study the genres of dialogues, public speaking, artistic expression, debate, persuasive and narrative styles in ASL. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 521. Prerequisite: ASL V with a minimum grade of B or instructor approval. LEC.

ASLD 723. ASL Pragmatics and Syntax. 3 Hours.
This course will focus on the study of syntactic structure and its interaction with meaning. Word order, lexical categories, sentence types, clause structure, topicalization and sentences with transitive, intransitive and agreement verbs are studied. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 523. Prerequisite: ASLD 520 or ASLD 720. LEC.

ASLD 724. Visual-Gestural Communication. 3 Hours.
Students will develop capabilities in non-verbal communication and visual gestural communication utilizing the study of gestures as a form of communication and basis for visual language. Emphasis is on learning to think visually in pictures and building production and comprehension communication skills. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 524. Prerequisite: Graduate standing or Instructor permission. LEC.

ASLD 730. American Sign Language Literature. 3 Hours.
This course will provide basic introduction, discussion, and demonstration of literature in American Sign Language (ASL). Such literature involves ASL Poetry, ASL Storytelling/ Narratives, Deaf Humor, Deaf Folklore and other genres that have been passed on from one generation to another by culturally Deaf people. Students will receive, analyze and retell a variety of ASL literature. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 530. Prerequisite: ASL IV or instructor approval. LEC.

ASLD 788. Internship in American Sign Language and Deaf Studies. 1-3 Hours.
This course provides opportunities for students to have direct interaction with Deaf, Hard of Hearing, Deaf Blind community members in order to apply cultural, linguistic and power/privilege concepts learned in the classroom. Students must complete a minimum of 50 hours per credit hour. Schedule will be determined by student and instructor. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 588. Prerequisite: Instructor approval. INT.
ASLD 789. Research Experience in American Sign Language and Deaf Studies. 3 Hours.
This course guides the students in reading, understanding and evaluating current research in ASL, Deaf Studies, ASL/English interpreting and related fields. Students will learn how to publish a paper and present a poster on a chosen topic of their interest. This course is offered at the 500 and 700 level with additional assignments at the 700 Level. Not open to students with credit in ASLD 589. Prerequisite: Instructor approval. RSH.

ASLD 803. Interpreting: Mediated Interactions in Communications. 3 Hours.
This course provides an introduction to real-time interpreting in mediated interaction contexts through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply theories, decision-making and engage in reflective practice. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 603. Prerequisite: ASLD 501 or ASLD 701, ASLD 502 or ASLD 702 with a minimum grade of B or instructor approval. LEC.

ASLD 804. Interpreting: ASL to English. 3 Hours.
This course provides an introduction to real-time interpreting with an emphasis on ASL source materials through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply theories and engage in reflective practice. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 604. Prerequisite: ASLD 501 or ASLD 701, ASLD 502 or ASLD 702 and ASL proficiency or instructor approval. LEC.

ASLD 805. Interpreting: English to ASL. 3 Hours.
This course provides an introduction to real-time interpreting with an emphasis on English source materials through a lens of meaning-based analysis and co-construction of meaning. Students will come to understand and apply theories and engage in reflective practice. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 605. Prerequisite: ASLD 501 or ASLD 701, ASLD 502 or ASLD 702 and ASL proficiency or instructor approval. LEC.

ASLD 806. Interpreting: Diverse Communities. 3 Hours.
This course examines language, culture and identity and the implications when interpreting among diverse populations. Students will apply interpreting theories, decision-making and reflective practice to both monologue and dialogic materials in both ASL and English. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 606. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805 or ASLD 806 or ASLD 808 with a minimum grade of B, and completion of an interpreting proficiency exam or instructor approval. FLD.

ASLD 807. Ethics and Professionalization for Interpreters. 3 Hours.
This course examines ethics as it relates to the work of interpreting through study of ethical codes of conduct, models of decision-making and elements of becoming an ethical professional. Students will come to understand the complexities of ethical decision-making and the importance of self-awareness, reflective practice and responsibility as they consider implications on micro and macro levels. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 607. Prerequisite: ASLD 603 or ASLD 803 or instructor approval. LEC.

ASLD 808. ASL/English Interpreting Observation Practicum. 1-6 Hours.
This practicum requires a minimum of 50 hours of observation, shadowing, teaming, professional responsibilities, duties, and/or activities (e.g., scheduling, preparation, invoicing, meetings, and in-service training) in authentic settings where interpreters are employed. Discussion and analysis will occur with instructor and peers on-line and in-person throughout the semester. Students will consult with their advisor prior to enrolling in the course. Each credit hour requires at least 50 hours of field experience. Prerequisite: ASLD 603 or ASLD 803 with a minimum grade of B or instructor approval. FLD.

ASLD 809. Practicum in American Sign Language Interpreting. 1-6 Hours.
This practicum requires 250 hours of field experience which may include observation, shadowing, teaming, professional responsibilities, duties, and/or activities (e.g., scheduling, preparation, invoicing, meetings, and in-service training) in authentic settings where interpreters are employed. A minimum of 90 hours will be direct provision of interpreting under the supervision of a certified interpreter. Discussion and analysis will occur with instructor and peers on-line and in-person throughout the semester. Students will consult with their advisor prior to enrolling in the course. Students are required to complete a minimum of 3 credit hours to complete the ASLD 809 requirements. This 250 hour practicum may be completed in one semester by enrolling in 3 credit hours, or can be completed over multiple semesters. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 609. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805, ASLD 608 or ASLD 808 with a minimum grade of B, and completion of an interpreting proficiency exam or instructor approval. FLD.

ASLD 810. Psychological Effects of Interpreting. 3 Hours.
This course examines both affective and cognitive psychological effects on interpreting practitioners. The importance of self-care, reflective practice, case-conferencing; as well as vicarious trauma, compassion fatigue, role-space, power and privilege are among topics discussed. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 610. Prerequisite: ASLD 603 or ASLD 803 or instructor approval. LEC.

ASLD 811. Business Practices for Interpreters. 3 Hours.
This course will provide students an introduction to business practices for interpreters. Concepts explored will include resume development, interview skills, invoicing, record keeping for tax purposes, certification maintenance and licensure renewal, etc. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 611. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805 or ASLD 808 or ASLD 805 or instructor approval. LEC.

ASLD 816. Interpreting: Dynamic Paralinguistic Demands. 3 Hours.
This course examines a variety of paralinguistic demands in the context of interpreting. Types of demands will include emotional communication, accents, regional dialects, physical and mental factors (Cerebral Palsy, injuries, etc.), fast paced communication, etc. Students will apply interpreting theories, decision-making and reflective practice to both monologue and dialogic materials in both ASL and English. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 616. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805 or instructor approval. LEC.

ASLD 826. Topics in ASL Vocabulary and Discourse: _____, 3 Hours.
This course will expand the interpreter training students’ vocabulary related to specialized fields and technical contexts. Students will enhance terminology in medical, mental health, education, religion, sex, drugs/ alcohol and strong language/culturally rich ASL. Students’ development of comprehension and production skills in common formal and informal settings will be emphasized. This course is offered at the 600 and 800
level with additional assignments at the 800 Level. Not open to students with credit in ASLD 626 if topic is the same. Prerequisite: ASL IV or instructor approval. LEC.

**ASLD 831. Advanced American Sign Language Literature. 3 Hours.**
This course analyzes and compares the various genres of American Sign Language literature. ASL poetry, narrative, humor, as well as written work by Deaf individuals and other language devices will be examined and discussed. Students will create and evaluate original work illustrating the similarities and uniqueness of ASL. Students will become familiar with well-known contributors such as: Clayton Valli, Patrick Graybill, Ella Mae Lentz, and the like. Research articles pertaining to ASL or Deaf Literature will be critiqued and discussed. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 631. Prerequisite: ASLD 530 or ASLD 730. LEC.

**ASLD 838. Topics in Interpreting: _______. 3 Hours.**
This course provides the opportunity for experimentation with innovative course content and learning strategies in accordance with guidelines established by faculty. Topics include interpreting in specialized settings, current trends, etc. This course is offered at the 600 and 800 level with additional assignments at the 800 Level. Not open to students with credit in ASLD 638 if topic is the same. Prerequisite: ASLD 603 or ASLD 803, ASLD 604 or ASLD 804, ASLD 605 or ASLD 805 or instructor approval. LEC.

**Courses**

**BTEC 300. Research Methods in Biotechnology. 3 Hours N.**
An integrated lecture and laboratory course exploring the science and basic laboratory skills used in food science, agricultural science, pharmaceutical science, clinical medicine, animal health, and environmental science. Survey of career opportunities in biotechnology. Guest lectures from field-experts in biotechnology. Prerequisite: BIOL 152; concurrent or prior enrollment in CHEM 330; or consent of instructor. LEC.

**BTEC 305. Molecular and Microbiological Techniques. 4 Hours N.**
An integrated lecture and laboratory course exploring the science and tools used in microbiology-based fields. A strong focus is placed on developing functional scientific skills required to run an RD or Production Lab. Students will survey the diversity of microbial life while becoming proficient in the tools that are used extensively in the laboratory. We emphasize hands-on experience with lab techniques applicable to addressing a variety of scientific problems. Specifically, this course will challenge students to apply their knowledge and skills to construct and express recombinant proteins in mammalian cells, purify, and quantitate their products. Prerequisite: Concurrent or prior enrollment in BIOL 350 and BTEC 300; or consent of instructor. LEC.

**BTEC 310. Scientific Communications. 3 Hours N.**
Theory and practice in communicating ideas to non-scientists. Course work includes written and oral presentations, technical writing, and professional networking. Students will learn to communicate ideas to a variety of audiences in both formal and informal settings. Prerequisite: ENGL 102; or consent of instructor. LEC.

**BTEC 341. Principles of Bioprocessing Laboratory I. 1 Hour N.**
Laboratory sessions involve use of microbial expression vectors, fermentation systems, and large-scale purification of recombinant protein. Includes bacterial cell culture techniques, principles of bioreactor/fermentation operations and purification techniques, and calibration.

Primary goal of this course is to provide students with an advanced background in bacterial upstream and downstream biotechnology. Prerequisite: BTEC 300; BTEC 340 or concurrent enrollment in BTEC 340. LAB.

**BTEC 400. Applied Immunology. 3 Hours N.**
An integrated lecture and laboratory course exploring the fundamentals of immunology. The course focuses on developing a conceptual knowledge of the constituents and processes of the immune system. Students will develop a functional understanding of how to operate and apply current immunology-based techniques. Laboratory activities will explore the use of immunological tools for research, discovery, and analysis of processes and experimental compounds. Prerequisite: BTEC 300; BTEC 305; or consent of instructor. LEC.

**BTEC 424. Independent Study in Biotechnology. 1-3 Hours N.**
Independent project at a related bioscience industry partner or faculty in selected topics of current translational research interest. May be undertaken only with the consent of the major advisor who will guide the research after determining objectives with the interested industry partner or faculty. Prerequisite: Consent of instructor. IND.

**BTEC 441. Principles of Bioprocessing Laboratory II. 1 Hour N.**
Mammalian cell culture techniques, principles of bioreactor operations and purification techniques, and calibration. The primary goal of this course is to provide students with an advanced background in mammalian upstream and downstream biotechnology. Prerequisite: BTEC 341; BTEC 440 or concurrent enrollment in BTEC 440. LAB.

**BTEC 460. Introduction to Quality Control/Quality Assurance in Biotechnology. 3 Hours N.**
Quality control techniques, assurance issues, and management methods. Quality in design and planning, in the constructed project, and in production of goods and services. Prerequisite: BTEC 330. LEC.

**BTEC 475. Applied Separation Science and Quantitative Analysis. 6 Hours N.**
An integrated lecture and laboratory course exploring the fundamentals of separation science and quantitative analysis of small molecules, peptides, and proteins. Students will be challenged to develop a functional understanding of the theory and application of sample preparation, separation technologies, and methods for quantification. Prerequisite: BTEC 300; or consent of instructor. LEC.

**BTEC 494. Selected Topics in Biotechnology. 1 Hour N.**
A synthesis and discussion of current trends related to biotechnology. Emphasis is placed on providing students with an awareness of advances on the leading edge of discovery, critically analyzing data, and developing skills for success in the next stage of a career in biotechnology. This course can be repeated for up to 2 credit hours. Prerequisite: Concurrent or prior enrollment in BTEC 300; or consent of instructor. Students must be in their junior or senior year of a biology-related degree. LEC.

**BTEC 501. Biotechnology Ethics and Responsible Conduct of Research. 3 Hours AE51 / N.**
Student investigations and discussions of current controversial issues in biotechnology. This course emphasizes thinking about new technologies in a rational and thoughtful way. Prerequisite: BTEC 300. LEC.

**BTEC 540. Biotechnology Capstone I. 3 Hours N.**
A project-based course that challenges students to develop, plan, execute, and communicate the results of a biotech-related project. Students will be guided through the initial stages of project design, project management, logistics, and technical training necessary to complete their project. This course is the first of a two semester series (BTEC 540 BTEC
BTEC 541. Gene Expression Analysis: Microarrays. 2 Hours N.
This course reviews current theory, techniques, instrumentation, troubleshooting, analysis tools, and advanced protocols for microarray analysis. Students have the opportunity to utilize skills learned during lecture in a laboratory environment. At the conclusion of this course, students understand microarray experimental design, its tools, and analysis of generated data. Prerequisite: BTEC 300. LAB.

BTEC 542. Protein Expression in Insect Cells. 2 Hours N.
Introduction to the insect cells expression system, and its advantages and disadvantages. Introduction to expression of recombinant proteins with baculovirus. Outline of antibody and antibody fragments as well as other complex proteins. Basic techniques used for growth and maintenance of insect cell cultures. The lab portion of the course provides students with practical experience in protein expression techniques in the insect cells expression system. Prerequisite: BTEC 300. LAB.

BTEC 545. RNA Interference and Model Organisms. 2 Hours N.
Introduction and history of RNA interference technology. Principles, mechanism, and applications of RNA interference in model organisms. Laboratory sessions include RNA interference-mediated silencing of genes in plants, C. elegans, and mammalian cell culture. Prerequisite: BTEC 300. LAB.

BTEC 547. Bioanalytical Lab. 2 Hours N.
Analytical methods used for testing biotherapeutics are examined. Emphasis is placed on assessing protein concentration, purity, identity and activity. The importance of sample processing, throughput and level of validation are explored as samples from upstream processing, downstream processing and final bulk are interrogated. Students also learn key concepts used to validate the performance of analytical methods. Prerequisite: BTEC 300. LAB.

BTEC 550. Applied Bioinformatics. 2 Hours N.
Overview of the fields of bioinformatics and genomics. Topics, tools, issues and current trends in these and related fields are discussed. Principles and practical application of bioinformatics tools in molecular biology, genetics, and electronic medical records are evaluated. The haploid human genome occupies a total of just over 3 billion DNA base pairs. The medical records of a population contain clues concerning better identification and treatment of disease. This information is not contained in books, but stored in electronic databases. This course is designed for life scientists from all fields to introduce them to the power of bioinformatics and enable them to access and utilize biological information in databases for their own research. Prerequisite: BTEC 300; BIOL 570 or MATH 365 (preferred); consent of instructor. LEC.

BTEC 599. Biotechnology Internship. 1-6 Hours N.
Supervised internship at a biotech company; or an independent thesis; or honors thesis with Honors Program. This course can be repeated for up to a total of 6 credit hours. Prerequisite: BTEC 305; BTEC 475; and consent of instructor. FLD.

BTEC 630. Biotechnology, Regulation, Quality Control, and Quality Assurance. 3 Hours N.
An integrated lecture and laboratory course exploring quality control, quality assurance, and regulatory considerations. Hands-on experimentation will develop a functional understanding of protocol design and a practical knowledge of GXP-guided processes. This course will focus on issues relevant to manufacturing, packaging, labeling, testing, and control of pharmaceutical products. Guest lectures from field-experts in the biotechnology industry. Prerequisite: Concurrent or prior enrollment in BTEC 599; or consent of instructor. LEC.

BTEC 640. Biotechnology Capstone II. 3 Hours AE61 / N.
A project-based course that challenges students to develop, plan, execute, and communicate the results of a biotech-related project. Students will be guided through the execution of their proposed plan with particular emphasis placed on managing scientists, gathering and analyzing data, and instituting quality controls/quality assurance protocols. Students will communicate the results of their project through a combination of an oral presentation and poster. This course is the second of a two semester series (BTEC 540 BTEC 640.) Prerequisite: BTEC 540; or consent of instructor. LAB.

Courses

EMGT 608. Principles of Engineering Management. 3 Hours.
Principles used by the engineer in managing technology-based organizations, focusing on core management functions. Prerequisite: Senior or graduate standing in an engineering curriculum or consent of the instructor. LEC.

EMGT 800. Special Topics in Engineering Management. 1-4 Hours.
Advanced study of a specialized nature representing unique or changing engineering management knowledge. RSH.

EMGT 801. Management Theory and Practice for Engineering Managers. 3 Hours.
Foundation for managing in technology-based organizations. Topics include essential management functions, schools of management thought, motivation, and management style. LEC.

EMGT 802. Technological Forecasting and Assessment. 3 Hours.
Methods of technology assessment and forecasting. Topics include scenario analysis, cross-impact analysis, judgmental mental forecasting methods such as Delphi, and foundational time series forecasting methods such as trend projection and auto-aggressive moving averages. Prerequisite: Elementary skills in statistics, computer programming, and linear algebra. LEC.

EMGT 803. Technological Forecasting and Assessment. 3 Hours.
Methods of technology assessment and forecasting. Topics include scenario analysis, cross-impact analysis, judgmental mental forecasting methods such as Delphi, and foundational time series forecasting methods such as trend projection and auto-aggressive moving averages. Prerequisite: Elementary skills in statistics, computer programming, and linear algebra. LEC.

EMGT 804. Business Development and Marketing of Professional Services. 3 Hours.
A broad review of the major components of marketing and integration of these components, culminating in students developing marketing plans for services. Theories, principles, and practices of business development and marketing applied to consulting oriented professional engineering and architectural firms. LEC.

EMGT 805. Management of Innovation. 3 Hours.
Preparation for managing technological change involving innovation. Topics include essential management functions, innovation types, impact of organizational structure and climate, and change management. LEC.

EMGT 806. Finance for Engineers. 3 Hours.
An introduction to finance in technology-based organizations. Topics include financial statements analysis, valuation of future cash flows, capital budgeting, risk and return, capital structure, and working capital management. LEC.

EMGT 807. Labor and Employee Relations for the Engineering Manager. 3 Hours.
Foundation for negotiation and administration of labor agreements. Topics include labor relations; human resources management; employment
practices in unionized and non-union organizations; and historical, legal, and structural environments influencing collective bargaining processes. LEC.

EMGT 808. Quality Management. 3 Hours.
Practical application of total quality management (TQM) concepts from planning through customer acceptance in technology-based organizations, focusing on understanding the concepts of the total supply chain, managerial aspects of quality, and improvement methodologies throughout. LEC.

EMGT 809. Personal Development for the Engineering Manager. 4 Hours.
Objectives, theories, and tests of engineering and management ethics and the relationship to personal values, and communications strategies. Development of career and life plans, and personal brand. Strong emphasis on the creation of both written papers and oral presentations. LEC.

EMGT 810. Applications of Quantitative Analysis in Decision Making. 3 Hours.
Practitioner-oriented presentation of managing and implementing optimization methods for improving design and decision making. Focus on methods of mathematical programming (linear, integer, and non-linear), queuing analysis, and decision analysis. Prerequisite: Elementary skills in linear algebra, probability, calculus, and computer application. LEC.

EMGT 811. Engineering Systems Simulation. 3 Hours.
Practitioner-oriented presentation of developing and using discrete-event simulation to improve engineering analysis and design, and management decision making processes, including instruction in a chosen simulation language. LEC.

EMGT 812. Law and the Design Professional. 3 Hours.
Legal doctrines relating to owners, design professionals, and contractors; contracts, including formation, rights and duties, interpretation, performance problems, disputes, and claims, standards of care and the management of construction claims, duties and obligation of the design professional, the owner, and the contractor; surety bonds and insurance; and sources of law, forms of association, and agency. Prerequisite: Admission to graduate study in engineering or architecture. LEC.

EMGT 813. Design Project Management in Professional Practice. 3 Hours.
Managing design projects, integrating perspectives of profitability and cost control, client satisfaction, and project team relations. Topics include explanation of a project manager's job via an augmented model of the Blake-Mouton grid. Prerequisite: Admission to graduate study in engineering or architecture. LEC.

EMGT 814. Leadership Techniques and Methods for the Engineering Manager. 3 Hours.
Formulating and communicating a compelling vision, convincing others to pursue that vision, and marshaling resources and talents. Coaching and public speaking. Improving decision making and communications, earning trust and building momentum, and inspiring and enabling others to excel. LEC.

EMGT 815. Business Relationships and Selling Skills. 3 Hours.
Fundamentals of business relationships and professional selling for any technical professional who would like to be more effective in "getting their message across" to external or internal customers. Relationship management, including ethical issues in business relationships. Experimental exercises on conducting and evaluating dialogues/presentations with customers, internal audiences, and upper management. LEC.

EMGT 816. Energy Management. 3 Hours.
Latest strategies for improving lighting, combustion processes, steam generation and distribution, and industrial waste re-utilization. Topics include distributed generation, energy auditing, rate structures, economic evaluation techniques, control systems, and maintenance. LEC.

EMGT 817. Mathematics for the Engineering Manager. 3 Hours.
Comprehensive math course addressing engineering managers' need for a greater understanding of mathematical concepts. LEC.

EMGT 818. Advanced Mathematics for the Engineering Manager. 2 Hours.
Supplements Engineering Management students' mathematical skills and knowledge as relevant to career needs. LEC.

EMGT 821. Strategic Analysis of Technology Projects. 3 Hours.
Strategic assessment of developmental projects, focusing on the proposed product or service, the organization, project details, and the environment. Topics include application of financial figures of merit, feasibility of competing projects, decisions under uncertainty, risk vs return, and forecasting. Prerequisite: Admission to the M.S. Engineering Management program or consent of instructor, EMGT 806, a course in applied statistics. LEC.

EMGT 823. Management of Internal Engineering Projects. 3 Hours.
Managing organizations' technology-oriented projects, both as inside staff and outside consultant. Covers the entire project life cycle as reflected in the Project Management Book of Knowledge. Practical considerations addressed include material procurement, work with contractors and consultants, selecting software, and managing the project team. LEC.

EMGT 824. Product Marketing for Engineering Managers. 3 Hours.
A broad review of the major components of marketing and integration of these components, culminating in students developing marketing plans for new or existing products. Theories, principles, and practices of marketing applied to engineering managers in production or manufacturing. Prerequisite: Admission to a graduate program in engineering or Pittsburgh State's technology management program. LEC.

EMGT 830. Case Studies in Engineering Management. 2-3 Hours.
A capstone course for the program, integrating the material presented in other courses through analysis of several engineering management case studies. Note: Research paper and presentation are part of the 3 credit hours option. Prerequisite: Completion of a minimum of 21 credit hours in the Engineering Management program. LEC.

EMGT 835. Field Project (M.S.). 1-3 Hours.
Research on a problem in engineering management, the satisfactory completion of which satisfies the project requirement for the degree of Master of Science in Engineering Management. TH~.

EMGT 840. Systems Approach to Engineering. 3 Hours.
Formal methods and processes in bringing complex systems into being, and improving existing systems. Topics include formal specification methods, definition of customer needs, systems life cycles, value-to-value analysis, and management of the systems engineering process. LEC.

EMGT 844. Managing Software Development Projects. 3 Hours.
Managing software development, optimizing business considerations and project demands satisfaction. Topics include project planning, cost and schedule estimation, risk measurement and control, uncertainty in specifications, cost and delivery requirements, and technology risks. Techniques presented are applicable to managing projects in other industries. LEC.
EMGT 845. Service Management for the Engineering Manager. 3 Hours.
Managing service-oriented organizations. Covers a wide array of industries, addressing service management from four primary perspectives: the basics of service science, the customer encounter, managing service operations, and the exceptional customer experience. LEC.

EMGT 848. Information Technology for Management. 3 Hours.
Developments in the field of information technology (IT), divided into two realms. First, current hardware, software, and networking technologies, involving relational databases, object-oriented design and programming, client-server technologies, and emerging communications technologies. Second, approaches to evaluating and implementing available information technology alternatives, including software development, management, and development, information integrity and security; and the effects of IT on people and organizations. LEC.

EMGT 850. Environmental Issues for Engineering Managers. 3 Hours.
Survey of environmental problems and their solution, and environmental regulations. Topics include the quantity and quality of various types of pollutants emitted to various media, and the risks posed by these pollutants; the regulatory process; and historical perspective, including pollution generation (sources), transportation, fate and effects. LEC.

EMGT 854. Management of Business Intelligence and Security for Strategic Planning. 3 Hours.
Management of competitive intelligence and security in business strategic planning is a first course at the graduate level that introduces the formal methods, concepts, and processes of competitive intelligence and security which are vital to both strategic business planning and day-to-day business operations. This course provides access to the tools used to identify what is happening in the business environment including legislation, economics, regulatory changes, competition, customers, etc. that affect a business’ strategy and operations. Further, these tools are applied to determining what will likely happen in the future and how to use those forecasts to optimize strategic and operational plans. LEC.

EMGT 860. Special Problems in Engineering Management. 1-4 Hours.
Original independent research on engineering management problems or subjects of immediate interest. May be repeated for credit to a maximum of four hours. Prerequisite: Approval of instructor. RSH.

EMGT 862. Manufacturing Systems Integration. 3 Hours.
Engineering and management-specific aspects of manufacturing and information systems integration. Engineering topics include agile, flexible, intelligent, and advanced manufacturing sub-systems; material handling and identification; vendor-specific automation; communication linkage between sub-systems; network and protocol alternatives; and hardware platform alternatives. Management topics include implementation approaches, quality management systems, long-range planning, support systems, and integration project management. LEC.

EMGT 867. Advanced Operations Management. 3 Hours.
Strategic issues and practical application of modern and advanced methods for designing and analyzing manufacturing processes and systems. Topics include: forecasting, product and service design, capacity planning, quality management, inventory management, scheduling, supply chain management, project management and simulation of manufacturing processes, and just-in-time, lean, synchronous, and agile systems. LEC.

Courses

ITEC 310. Computer Organization and Platform Technologies. 3 Hours.
Machine-level representation of data, digital logic and digital systems, computer architecture and organization, computing infrastructure, introduction to multiprocessing systems, firmware, hardware and software integration, introduction to intersystems communications, enterprise deployment management introduction to virtual machine emulation, platform technologies. Prerequisite: Upper-level IT eligibility. LEC.

ITEC 320. System and Network Administration. 3 Hours.
This course introduces operating systems and network administration and presents topics related to selection, installation, configuration, and maintenance of operating systems and computer networks. Topics to be covered include: Unix and Windows operating systems installation, configuration, and maintenance, server administration and management, client and server services, user and group management and support, software systems installation and configuration, content management and deployment, security management, network administration, backup management and disaster recovery, resource management, automation management, operating systems and Web domain management, operating systems and application version control management. A laboratory component will provide hands-on experience with system and network administration. Prerequisite: Upper-level IT eligibility. Corequisite: IT 310. LEC.

ITEC 330. Web Systems and Technologies. 3 Hours.
The objective of this course is to discuss how the Web systems are programmed and maintained and how online pages are created and delivered by Web servers and used by clients. Topics to be covered include: Web systems and technologies, information architecture, digital media, Web development, Web standards, vulnerabilities, social network software, client-side programming, server-side programming, Web services and servers, XHTML, CSS, flash and CGI programming, CSS, Web systems security, JavaScript, PHP, and emerging technologies. Prerequisite: Upper-level IT eligibility. Corequisite: IT 310. LEC.

ITEC 340. Computer and Information Security. 3 Hours.
Fundamentals of computer security, security mechanisms, information states, security attacks, threat analysis models, vulnerability analysis models, introduction to cryptography, authentication, intrusion detection, intrusion prevention (firewalls), operating systems security, database security, software security, host hardening, incident and disaster response. Prerequisite: Upper-level IT eligibility. LEC.

ITEC 342. Information Security Management. 3 Hours.
The objective of this course is to present topics related to the administration and management of information security. Topics to be covered include: security fundamentals, operational issues, cost-benefit analysis, asset management, security risk management, security policies and enforcement, risk avoidance, risk prevention, risk transfer, security services, security forensics, contingency planning, security auditing. A laboratory component will provide hands-on experience with security management and administration. Prerequisite: IT 340 and upper-level IT eligibility. LEC.

ITEC 380. Managing IT Projects. 3 Hours.
The objectives of this course are to cover the fundamental concepts in managing IT projects. Topics include planning, executing, monitoring, controlling, and closing a project, designing a comprehensive project management plan, developing strategies in managing complexity in large projects, and understanding agility in project management. Project management concepts such as planning, scheduling, cost and effort estimation, risk analysis and mitigation, human resources management,
communication management, and stakeholder management will be presented in detail. Prerequisite: Upper-level eligibility or consent of the instructor. LEC.

**ITEC 399. Directed Reading in IT. 1-4 Hours.**
Reading under the supervision of an instructor on a topic in Information Technology. The topic, expected outcome, evaluation criteria, and the number of credit hours must be mutually agreed on by the student and the instructor. Course may not be used to fulfill major elective requirements. Consent of the department required for enrollment. Prerequisite: Consent of instructor and upper-level IT eligibility. LEC.

**ITEC 410. Software Engineering and Management. 3 Hours.**
This course introduces the software development life cycle and key concepts related to software engineering. Topics include software process models, software project management, software requirements engineering, formal and informal modeling, software architecture, software design, coding and implementation, software testing and quality assurance, software deployment, and software evolution. Additional topics such as software metrics and measures, application domains, software engineering standards, and software configuration management will also be presented. This is a project-driven course. Prerequisite: IT 380. LEC.

**ITEC 414. Database Design. 3 Hours.**
The objective of this course is to present key concepts related to database design and implementation. Topics to be discussed include: database architecture, relational data model, SQL, database design life cycle, conceptual data modeling, relational database normalization, query processing, transaction processing, database security, and database administration. This is a project-driven course. Prerequisite: IT 330. LEC.

**ITEC 416. System Integration and Architecture. 3 Hours.**
This course introduces system integration and architecture. Key concepts to be presented include: system architecture, system requirements, organizational context, acquisition and sourcing, system and component integration, middleware platforms, design patterns, integrative coding, scripting coding, testing and quality assurance, system deployment. Prerequisite: IT 410. LEC.

**ITEC 420. Operating Systems. 3 Hours.**
This course introduces operating systems principles and associated key concepts. Topics to be discussed include: processes and threads, concurrency, scheduling and dispatch, memory management, processor management, device management, security and protection, file system, disk scheduling, real-time and embedded systems, fault tolerance, scripting, and an introduction to virtualization. Prerequisite: IT 320. LEC.

**ITEC 422. Computer Networks. 3 Hours.**
Foundations of computer networking with practical applications and network administration, with emphasis on the Internet and wireless public switched telephone network. Topics to be covered include: routing and switching, routing algorithms, physical layer, data link layer, network layer, network security, network management, and application areas. Prerequisite: IT 320. LEC.

**ITEC 424. Network Security. 3 Hours.**
This course covers the fundamental concepts, principles, and mechanisms in network and distributed system security. The topics that will be covered include: network security primitives, distributed authentication, key management, secure communication protocols, firewalls, intrusion detection, traffic monitoring and analysis, email and Web security, etc. Prerequisite: IT 340 and IT 422. LEC.

**ITEC 430. Human-Computer Interaction. 3 Hours.**
This course introduces principles of human-computer interaction. Important topics to be presented include: human factors, human-centered design and evaluation, graphical user interfaces, multimedia system integration, interactive systems development, computer-supported cooperative work, human cognitive skills, accessibility, alternative input/output media, and emerging technologies. Prerequisite: Completion of nine credits of IT 300-level coursework or consent of the instructor. LEC.

**ITEC 440. Cloud Computing. 3 Hours.**
This course introduces principles of cloud computing and the business and computing technology trends that enable and necessitate its use. Cloud computing and its engineering and delivery models, Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS), will be covered. Cloud-based and RESTful web services for developing new applications and offering new services will be discussed. Topics related to cloud computing security, identity, auditing, and authorization management will be presented. The course will be project based and an existing cloud computing platform (e.g., Amazon AWS) will be used for projects. Prerequisite: IT 320 or consent of the instructor. LEC.

**ITEC 450. Social and Professional Issues. 3 Hours AE51.**
This course will provide an overview of the history of computing and presents key concepts related to the social and professional aspects of IT. Topics to be covered include: pervasive themes in IT, social context of computing, intellectual property, legal issues in computing, professional and ethical issues and responsibilities, privacy and civil liberties. Prerequisite: Completion of nine credits of IT 300-level coursework or consent of the instructor. LEC.

**ITEC 452. Special Topics in IT: ______. 3 Hours.**
This course introduces a special topic of current interest in information technology, offered as the need arises. May be repeated for additional credit. Prerequisite: Upper-level IT eligibility and consent of instructor. LEC.

**ITEC 490. IT Capstone I. 3 Hours AE61.**
Capstone is a senior level course designed to allow a student to review, analyze, integrate, and apply technical knowledge in a meaningful and practical manner. The student will be expected to complete an approved academic project in IT that may be in collaboration with an industrial partner. Prerequisite: Corequisite: IT 410. LEC.

**ITEC 492. IT Capstone II. 3 Hours.**
IT Capstone II is a continuation of IT Capstone, is a senior level course designed to allow a student to review, analyze, integrate, and apply technical knowledge in a meaningful and practical manner. The student will be expected to complete an approved academic project in IT that may be in collaboration with an industrial partner. Prerequisite: IT 490. LEC.

**Courses**

**PMGT 800. Special Topics: ______. 3 Hours.**
Advanced or experimental work of specialized nature representing unique or changing needs and resources in project management. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

**PMGT 802. Innovation and Change Management Process. 3 Hours.**
This course will examine innovation models and change management process utilized by successful organizations. The course will emphasize how these concepts relate to project management within an organization and the management of technical operations. The course will address the following topics: -Key models for innovation and how they impact planned change processes -Key organizational factors that impact planning for change -Strategies for change within project work -Resistance to change within planned change process -Ethical considerations relating to change management LEC.
PMGT 806. Finance for Project Manager. 3 Hours.
A study of finance including financial planning and management in technological based organizations. Topics covered include financial statement analysis, present value of financial markets, capital budgeting, taxes, investment decisions, replacement decisions, cash flow budgets and sources of capital. LEC.

PMGT 808. Lean Six Sigma. 3 Hours.
This course is an introduction to the principles of implementing the Lean Six Sigma philosophy and methodology. Lean Six Sigma is a total enterprise philosophy. Topics follow the DMAIC process and include tools and methods such as process flow diagrams, cause and effect diagrams, failure mode and effects analysis, capability studies, and design of experiments. The use of various concepts to reduce waste and improve system performance such as process flow, standardized work, value streams, workplace organization, and visual controls are covered. Course Objectives: -Understand and apply the Six Sigma DMAIC model for improvement activities. -Utilize Six Sigma knowledge and skills to lead successful improvement projects that deliver meaningful results. -Facilitate the use of improvement tools and techniques in improvement projects. LEC.

PMGT 809. Personal Development for Project Managers. 4 Hours.
Concepts and skills development in the primary areas of communication methods, ethical behavior, conflict resolution, workforce diversity, and continuous learning, and secondary areas of basic project and project team contexts and related interpersonal relations. Career development is emphasized. LEC.

PMGT 810. Financial Management. 3 Hours.
A study of the concepts and applications of financial planning and management for project and operational managers. Topics include time value of money, asset valuation, capital structures and budgeting, financial analysis and cash flow, and project and operational investment decision-making. Course Objectives: -Knowledge and understanding of the principles of financial planning and management. -Knowledge and skills with corporate structures, financial institutions, and investments. -Knowledge and skills with financial reports including balance sheets, income statements and financial ratios. -Ability to apply time valuations, cash flows, and taxation in project and operational environments. -Ability to apply capital structures and budgeting in project and operational decisions. LEC.

PMGT 811. Project Contracts and Procurement. 3 Hours.
An advanced study of the project procurement and contract administration bodies of knowledge and their applications. The project procurement's place in a supply chain life cycle is covered from needs identification to contract closeout with emphasis on requirements definition, vendor selection, contract negotiation and award, service delivery, and performance monitoring. Course Objectives: -Knowledge and understanding of the theories, principles, and benefits of the project procurement life cycle. -Knowledge and application of procurement planning and contract administration best practices, processes, and tools. -Practical application of the project management body of knowledge specific to project procurement management. -Practical application of the supply chain and commercial business body of knowledge specific to contract award, execution, and closeout. LEC.

PMGT 816. Project Management Fundamentals I. 3 Hours.
Managerial concepts and skills development in relation to the project-oriented business environment, project lifecycle, integrated project management, project selection, and project initiation. Focus is on management of a single project. LEC.

PMGT 817. Project Management Fundamentals II. 3 Hours.
Planning concepts and skills development in relation to developing needed information on project scope, time, cost, and risk, and making direct use of such information to develop key documentation such as the project schedule and budget. Examples of specific topics considered include project work content and change, documentation, and resource requirements. Planning content is complementary to that of PMGT 818. Prerequisite: PMGT 816. LEC.

PMGT 818. Project Management Fundamentals III. 3 Hours.
Concepts and skills development in relation to planning for management of communications, human resource aspects of project team formation and development, procurement, and quality. Examples of specific topics considered include information handling, reporting, and stakeholder relationships. Planning content is complementary to that of PMGT 817. Prerequisite: PMGT 817. LEC.

PMGT 819. Project Management Fundamentals IV. 3 Hours.
Concepts and skills development in relation to project execution, including processes monitoring and controlling, and project closure. Examples of specific topics considered include handling change requests, procurement, teamwork and team development, and cost management. Course content represents systematic treatment of all aspects of project management beyond planning-but is, in project execution and closing phases. Prerequisite: PMGT 818. LEC.

PMGT 820. Management of New Product Development Projects. 3 Hours.
This course discusses how to properly manage new product development processes using project management tools and techniques. New products are not projects until they are analyzed, planned, scheduled, budgeted, managed, and controlled by managers. It is not typically technical process issues that result in failed new product introductions, but rather a failure in their management and marketing. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, PMP Certified. LEC.

PMGT 821. Management of Consulting Projects. 3 Hours.
Application area course exposing students to specialized knowledge, standard, and regulations involved in managing consulting projects. Attention is directed to unique characteristics of consulting project environments, major project phases-from selection to closing and related management processes. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

PMGT 822. Management of Governmental Projects. 3 Hours.
Application area course exposing students to specialized knowledge, standards, and regulations involved in managing projects for governmental entities. Attention is directed to unique characteristics of the governmental project environments, major project phases-from selection to closing and related management processes. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

PMGT 823. Risk Management for Project Managers. 3 Hours.
Advanced study of risk management theory and practice as applied in managing projects. Basic concepts and methods of risk management are reviewed-such as qualitative and quantitative risk assessment-and details then examined. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

PMGT 824. Project Cost Estimation, Analysis, and Control. 3 Hours.
Advanced study of cost estimation methodology, cost engineering, and cost control applicable in project management. Includes review of commonly used supportive software. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.
PMGT 825. Portfolio Analysis for Project Managers. 3 Hours.
Concepts and methods of intra-and inter-project finance including inter-organization funding, project evaluation and selection, project cost accounting, portfolio formulation and modification, and performance tracking. Introduces fundamentals of investment theory and real options analysis. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

PMGT 826. Program Management. 3 Hours.
Examination of program definition, structuring, and management in the context of organizational strategy, and the critical resources and skills required in long-term program evolution and execution. Facilitation of efforts across multi-tiered organizations will be stressed. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

PMGT 827. Project Team Management and Development. 3 Hours.
Concepts and methods of team and team member development, achieving higher-performance teams while satisfying organizational expectations. Specific topics include management concepts and practices, team dynamics, and interpersonal skills in negotiation and conflict resolution. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

PMGT 828. Management of Global Projects. 3 Hours.
Survey of management challenges in conducting international projects, emphasizing cross-culture issues. Differences across world regions and selected key countries in relation to communication and interpersonal norms, business conventions, and legal systems will receive particular attention. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

PMGT 829. Management of Distributed Project Teams. 3 Hours.
Concepts and methods of conducting high-performance, multi-site team operations, focusing on intra-team communication, coordination, and control. Incorporates review of practical technologies with emphasis on web-enabled approaches. Prerequisite: PMGT 816, Project Management-Master of Engineering plan code, or PMP Certified. LEC.

Reinforcement and demonstration of developing project management skills through case analysis and discussion. Goal is integration of learning across all core courses, and also drawing on content from general management, applications area, and advanced project management elective courses taken. Emphasis is on integrated project management. The students will document their project in a written report and present their project during the final oral examination to the Project Management facility and student's employer or representative if practical. This course can be taken up to three times for a maximum of three credits. Prerequisite: Must complete 21 credit hours. LEC.

PMGT 833. Management of Internal Projects for Scientists and Technical Professionals. 3 Hours.
The purpose of this course is to introduce the student to all aspects of managing a project within a company or organization. The entire project life cycle will be covered from inception to close-out, and many practical considerations will be discussed including material procurement, working with contractors and consultants, selecting software, and managing the project team. The course will focus on how to manage project scope, schedule budget, and resources using personal computer software. A semester project is required presenting an example of project management or investigating some aspect of project management in detail. LEC.

PMGT 835. Project Management Capstone. 1-3 Hours.
The capstone serves as a culminating experience for this degree. Students will develop an applied workforce project or benefit to in the student's place of employment for full time students. The students will document their project in a written report and present their project during the final oral examination to the Project Management facility and student's employer or representative if practical. This course can be taken up to three times for a maximum of three credits. Prerequisite: Must complete 21 credit hours. LEC.