University Curriculum Committee
13 November 2003 Meeting Minutes

Members present:

Members excused:
E. Arnold, J. Smith

1) Professor Reaves introduced Diana Coltraine to the committee. Ms. Coltraine joins Academic Affairs, working in Academic Program Development.

2) Approved without dissent the revised minutes of the 23 October 2003 meeting.

3) Professors Brian Harris and Jill Twark from the German Program, Department of Foreign Languages and Literatures, spoke in favor of changes to the German Program:

**Course Deletions:**
GERM 2421: Culture of the German-speaking World (catalog, p. 359)
GERM 3510: Introduction to German Literature (catalog, p.359)

**New Courses:**
GERM 2210: Intermediate German Composition and Conversation
GERM 2211: Intermediate German Composition and Conversation II
GERM 3340: Civilization of the German-Speaking World
GERM 4700: Special Topics in German Studies

**Renumbered Courses:**
GERM 2300: Introduction to German Literature (currently GERM 3510)

**Prerequisite Changes:** They request that the prerequisites for GERM 3110, 3210, 3300, 3350, 3520, 3530, 3540, 3550, 3700, 4880 be changed as explained in the catalog copy.

**Revisions to Core for the BA in German & BS in German Education and to the German minor** (explained in the catalog copy)

After some discussion, Toppen moved for approval, with a second by E. Smith. Motion passed without dissent.
4) Professor Cathy Hall of the Department of Psychology attended the meeting speaking on behalf of the MD/7 Initiative. This proposal involves modifications to the following degree programs to allow qualified students to attend ECU for three years, Brody School of Medicine their fourth year, and then receive their undergraduate degree after their first year of medical school. Participating degree programs include:

- B.S. in Biology
- B.A. in Chemistry
- B.S. in Environmental Health
- B.S. in Health Education & Promotion
- B.S. in Multidisciplinary Studies – neuroscience
- B. A. in Physics
- BSAP (BS in Applied Physics)

Specific changes outlined in the catalog copy. After discussion, Kean moved for approval, with a second by Toppen. Motion passed without dissent.

5) Dean Ralph Rogers, Professors Phil Lunsford, Paul Kauffman, and William McPherson, and Ms. Leslie Pagliari and Sharon Bland from the College of Technology and Computer Science attended the meeting to speak in favor of the proposed BS in Engineering. The proposed degree plan includes the following new courses:

- ICEE 1010: Integrated Collaborative Engineering I
- ICEE 1020: Integrated Collaborative Engineering II
- ICEE 2010: Integrated Collaborative Engineering III
- ICEE 2020: Integrated Collaborative Engineering IV
- ICEE 3010: Engineering Systems and Problem Solutions
- ICEE 3020: Information Systems Engineering
- ICEE 4010: Senior Capstone Design Project
- ICEE 4020: Senior Capstone Design Project II
- BIME 3000: Introduction to Biomedical Engineering
- BIME 4000: Biomedical Instrumentation
- ENMA 3000: Introduction to Engineering Management
- ENMA 4000: Quality Systems Design
- SYSE 3010: Principles and Methods of Systems Engineering
- SYSE 3040: Dynamic Systems and Control
- SYSE 3060: System Optimization
- SYSE 4000: Integrated Systems Engineering
- SYSE 4010: Human-Machine Systems: Design and Analysis
- SYSE 4065: Discrete System Simulation

The catalog copy describes the degree requirements. After lengthy discussion, Mitchelson moved for approval of the Engineering package, with a second by Kean. Motion approved without dissent.

6) The committee discussed the issue of what should constitute the official ECU catalog (online, printed, real-time, etc.). Professor Reaves mentioned the status of various other system universities, such as NCSU and UNC-C. She mentioned serious problems with how one-stop interacts with the Academic Affairs database.
Committee members expressed concern over the lack of hard copy catalogs, access to computers, the ‘unfriendly’ current online version of the catalog, potential problems associated with deciding under which catalog a student would graduate, etc. R. Reaves will prepare a memo, and the committee will deliberate on it at the next meeting.

7) Meeting adjourned at 3:37 pm.

Minutes submitted by Tim Hudson

University Curriculum Committee
Catalog Copy
For Minutes of 11/13/2003 UCC Meeting

submitted by Ron Graziani

University Curriculum Committee
Catalog Copy
For Minutes of 11/13/2003 UCC Meeting

Department of Foreign Languages and Literature

III. Core Courses 36 s.h. (Catalog, pp. 119 – 20)

BA in German and BS in German Education

  German 2210 Intermediate German Composition and Conversation I
  German 2211 Intermediate German Composition and Conversation II
  German 2300 Introduction to German Literature
  German 2420 Culture of the German-speaking World
  German 3210 Conversation
  German 3330 Composition and Advanced Grammar
  Choose 6 s.h. of German literature above 2999
  Choose 12 s.h. of GERM electives above 2999

IV. German Minor 24 s.h. (Catalog, pp. 122 – 3)

  German 2210 Intermediate German Composition and Conversation I
  German 2211 Intermediate German Composition and Conversation II
  German 2300 Introduction to German Literature
  German 2420 Culture of the German-speaking World I
German 3210 Conversation
German 3330 Composition and Advanced Grammar
Choose 6 s.h. of GERM electives above 2999

- Deletions
  - Delete:
  German 2421 Culture of the German-speaking World (Catalog, p. 359)
  German 3510 Introduction to German Literature (Catalog, p. 359)

- New courses
  - cat page no. 358
  GERM 2210. Intermediate German Composition and Conversation I (3) [P: GERM 1004 or consent by department chair] Intensive development of oral skills for use in everyday situations, vocabulary growth, listening comprehension, and correctness in grammar. Practice in task-oriented compositions and comprehensive review of grammatical forms and usage.

  - cat page no. 358
  GERM 2211 Intermediate German Composition and Conversation II (3) (GE:HU) (F) [P: GERM 1004] Practice in the spoken and written language with emphasis on developing students' writing skills and increasing knowledge of contemporary culture. Makes use of a variety of print and multimedia texts including literature, newspapers, magazines, film, television and the world wide web. May count toward Humanities general education requirement.

  - cat page no. 359 renumbered (currently GERM 3510)
  GERM 2300: Introduction to German Literature (3) (GE:HU) (F) [P: GERM 1004] Development of reading skills necessary for understanding genre, concepts of literary structure, and criticism through analysis of selected writings.

  - cat page no. 359
  GERM 3340: Civilization of the German-Speaking World (3)(HU) (F) [P: GERM 2210 or GERM 2211, GERM 2420] Survey of the cultural development of the German-speaking peoples from the Germanic tribes to the reunification of East & West Germany through the reading and discussion of significant texts.

  - cat page no. 359
  GERM 4700 Special Topics in German Studies (3) May be repeated for a maximum of 6 s.h. with change of topic. P: Consent of department chair. Selected topics relating to the language, literature, culture, or civilization of the German-speaking world. Topics vary.

GERMAN CHANGES

pp. 119 – 120 of 2003 – 2004 Undergraduate Catalog

BA in German
Minimum degree requirement is 126 s.h. of credit as follows:
1. General education (See Section 6, Undergraduate Studies, Requirements for Baccalaureate Degree
Programs), including those listed below................................................................. 42 s.h.
HIST 1030. World Civilizations to 1500 (3) (WI) (F,S,SS) (GE:SO) and HIST 1031. World Civilizations Since 1500 (3) (WI)
(F,S,SS) (GE:SO) or HIST 1552. Honors, World History to 1500 (3) (F) (GE:SO) and HIST 1553. Honors, History of
Europe Since 1500 (3) (S) (GE:SO)
   HIST 3450. History of Modern Germany (3) (GE:SO)
2. Core .................. 36 s.h.
GERM 2210. Intermediate German Composition and Conversation I (3) (P: GERM 1004 or consent of dept chair)
GERM 2211. Intermediate German Composition and Conversation II (3) (P: GERM 1004 or consent of dept chair)
GERM 2300. Introduction to German Literature (3) (GE:HU) (P: GERM 1004 or consent of dept chair)
GERM 2420. Culture of the German-Speaking World I (3) (GE:HU) (P: GERM 1004 or consent of dept chair)
GERM 2421. Culture of the German-Speaking World II (3) (GE:HU) (P: GERM 1004 or consent of dept chair)
GERM 3210. Conversation (3) (P: GERM 2210, 2211, 2300, 2420, 2421; or consent of dept chair)
GERM 3330. Composition and Advanced Grammar (3) (WI) (P: GERM 2210, 2211, 2300, 2420, 2421; or consent of dept chair)
GERM 3510. Introduction to German Literature (3) (GE:HU) (P: GERM 2420, 2421; or consent of dept chair)
   Choose 6 s.h. of German literature above 2999
   Choose 12 s.h. of GERM electives above 2999
3. Minor and general electives to complete requirements for graduation.
4. In the second semester of the junior year, a German major must pass an oral qualifying examination.

BS in German Education
See Section 7, Degree Programs, School of Education, Licensure, for NC teacher licensure
requirements. Minimum degree
requirement is 126 s.h. of credit as follows:
1. General education plus special requirements for licensure (See Section 6, Undergraduate Studies,
Requirements for Baccalaureate Degree Programs), including those listed below ...................... 42 s.h.
COMM 2410. Public Speaking (3) (F,S,SS) (GE:FA) or COMM 2420. Business and Professional
Communication (3)
(F,S,SS) (GE:FA)
HIST 1030. World Civilizations to 1500 (3) (WI) (F,S,SS) (GE:HU) and HIST 1031. World Civilizations
Since 1500 (3) (WI)
(F,S,SS) (GE:HU) or HIST 1552. Honors, World History to 1500 (3) (F) (GE:HU) and HIST 1553. Honors, History of
Europe Since 1500 (3) (S) (GE:HU)
HIST 3450. History of Modern Germany (3) (GE:HU)
MATH 1065. College Algebra (3) (F,S,SS) (GE:MA) (P: Appropriate score on mathematics placement
test) or MATH
1066. Applied Mathematics for Decision Making (3) (F,S,SS) (GE:MA) (P: Appropriate score on mathematics
placement test or approval of dept chair) or MATH 2127. Basic Concepts of Mathematics (3) (F,S,SS)
(GE:MA)
(P: Appropriate score on mathematics placement test)
PSYC 1000. Introductory Psychology (3) (F,S,SS) (GE:SO)
Choose a literature course
Some courses which carry general education credit are identified using the following key. Consult the
offering department concerning additional courses
which carry general education credit. Courses in major prefix may not count toward general education. (GE:EN)=English; (GE:EX)=Exercise and Sport Science; (GE:FA)=Fine Arts; (GE:HL)=Health; (GE:HU)=Humanities; (GE:MA)=Mathematics; (GE:SC)=Science; (GE:SO)=Social Science

2. Core ............. 36 s.h.
GERM 2210. Intermediate German Composition and Conversation I (3) (P: GERM 1004 or consent of dept chair)
GERM 2211. Intermediate German Composition and Conversation II (3) (P: GERM 1004 or consent of dept chair)
GERM 2300. Introduction to German Literature (3) (GE: HU) (P: GERM 1004 or consent of dept chair)
GERM 2420. Culture of the German-Speaking World I (3) (GE:HU) (P: GERM 1004 or consent of dept chair)
GERM 2421. Culture of the German-Speaking World II (3) (GE:HU) (P: GERM 1004 or consent of dept chair)

   GERM 3210. Conversation (3) (P: GERM 2210, 2211, 2300, 2420, 2421; or consent of dept chair)
GERM 3330. Composition and Advanced Grammar (3) (WI) (P: GERM 2210, 2211, 2300, 2420, 2421; or consent of dept chair)

GERM 3510. Introduction to German Literature (3) (GE:HU) (P: GERM 2420, 2421; or consent of dept chair)
Choose 6 s.h. of German literature above 2999
Choose 12 s.h. of GERM electives above 2999

3. Professional courses .................................................................................................................. 36 s.h.
EDTC 4001. Technology in Education (3) (F,S) (P: Admission to upper division)
EDUC 3200. Introduction to American Education (3) (WI*) (F,S,SS) (P: Early experience course or consent of instructor)
EDUC 4400. Foundations of School Learning, Motivation, and Assessment (3) (F,S) (P: Admission to upper division)
or PSYC 4305. Educational Psychology (3) (F,S,SS) (P: PSYC 2201 or 2240 or 3206 or 3240 or equivalent)
ELEM 3275. Early Childhood and Elementary School Curriculum (3) (F,S,SS)
GERM 2611. Early Experiences for the Prospective Teacher (1)
GERM 4611. Teaching Second Languages in Grades K-12 (5)
GERM 4880. Internship in German (10) (P: Admission to upper division; GERM 2210, 2211, 2120, 2300, 2420, 2421, 3200, 3300, 3210, 3330, 6 s.h.; 9 s.h. GERM literature above 2999; 9 s.h. 12 s.h. GERM electives above 2999)
GERM 4881. Internship Seminar: Issues in German Teaching (1) (P: Admission to upper division; C: GERM 4880 4324)
PSYC 3206. Developmental Psychology (3) (WI*) (F,S,SS) (GE:SO) (P: PSYC 1000 or 1060)
READ 3990. Teaching Reading in the Content Areas in the Secondary School (2) (F,S,SS)
SPED 4010. Exceptional Students in the Regular Classroom (2) (F,S) (RP: SPED 2000)

4. Electives to complete requirements for graduation.

5. In the second semester of the junior year, a German major must pass an oral qualifying examination.

German Minor
Students interested in minoring in German should consult with the departmental German adviser to plan their minor program. The German minor requires 24 s.h. of credit as follows:

   1. Core .............. 18 s.h.
GERM 2210. Intermediate German Composition and Conversation I (3) (P: GERM 1004 or consent of dept chair)
GERM 2211. Intermediate German Composition and Conversation II (3) (P: GERM 1004 or consent of dept chair)
GERM 2300. Introduction to German Literature (3) (GE: HU) (P: GERM 1004 or consent of dept chair)
GERM 2420. Culture of the German-Speaking World I (3) (GE:HU) (P: GERM 1004 or consent of dept chair)

GERM 2421. Culture of the German-Speaking World II (3) (GE:HU) (P: GERM 1004 or consent of dept chair)

GERM 3210. Conversation (3) (P: GERM 2210, 2211, 2300, 2420, 2424; or consent of dept chair)

GERM 3330. Composition and Advanced Grammar (3) (WI) (P: GERM 2210, 2211, 2300, 2420, 2424; or consent of dept chair)

GERM 3510. Introduction to German Literature (3) (GE:HU) (P: GERM 2420, 2421; or consent of dept chair)

2. GERM electives above 2999

pp. 358 – 360 of 2003 – 2004 Undergraduate Catalog

GERM: GERMAN

1001. German Level I (3) Lab work. Recommended early in college career for BA students and potential GERM majors and minors. First of four-course sequence. Intensive training in basic skills of understanding, speaking, reading, and writing German. Focus on life and culture of German-speaking world.

1002. German Level II (3) Lab work. Recommended early in college career for BA students and potential GERM majors and minors. P: GERM 1001 or placement in 1002 by German placement test. Second of four-course sequence. Further intensive training in basic skills of understanding, speaking, reading, and writing German. Focus on life and culture of German-speaking world.

1003. German Level III (3) Lab work. Recommended early in college career for BA students and potential GERM majors and minors. P: GERM 1002 or placement in 1003 by German placement test. Third of four-course sequence. Intensive training leading to more advanced levels of achievement in understanding, speaking, reading, and writing German. Focus on life and culture of German-speaking world.

1004. German Level IV (3) Lab work may be required. Recommended early in college career for BA students and potential GERM majors and minors. P: GERM 1003 or placement in 1004 by German placement test. Fourth of four-course sequence. Further intensive training leading to intermediate-level proficiency in understanding, speaking, reading, and writing German. Readings and discussions to further acquaint student with life, literature, and culture of German-speaking world.

2210. Intermediate German Composition and Conversation I (3) P: GERM 1004 or consent of dept chair. Intensive development of oral skills for use in everyday situations, vocabulary growth, listening comprehension, and correctness in grammar. Practice in task oriented compositions and comprehensive review of grammatical forms and usage.

2211. Intermediate German Composition and Conversation II (3) (GE: HU) P: GERM 1004 or consent of dept chair. Practice in the spoken and written language with emphasis on developing students’ writing skills and increasing knowledge of contemporary culture. Makes use of a variety of print and multimedia texts including literature, newspapers, magazines, film television and the world wide web.

2300. Introduction to German Literature (3) (GE: HU) P: GERM 1004 or consent of dept chair. Development of reading skills necessary for understanding genre, concepts of literary structure, and criticism through analysis of selected writings.

2420. Culture of the German-Speaking World (3) (GE:HU) P: GERM 1004 or consent of dept chair. Selected contemporary aspects of cultures of German-speaking world through reading and discussion
of selected texts.

2421. Culture of the German-Speaking World II (3) (GE:HU) P: GERM 1004 or consent of dept chair. Aspects of cultures of German-speaking world within their historical contexts through reading and discussion of selected texts.

2611. Early Experiences for the Prospective Teacher (1) For prospective teachers. Minimum of 16 hours of directed observations and planned participation in appropriate school environments and 8 hours of seminar class instruction in the teaching area. May not count toward BA or minor. Introduces teaching of German.

2700. Special Topics in German Studies (3) P: GERM 1004 or consent of dept chair. Selected topics related to language, literature, culture, or civilization of German-speaking countries. Topics vary.

3110. German Business Communication (3) P: GERM 2210, 2211, 2300, and 2420, 2421; or equivalent. Working knowledge of oral and written German as used in business world. Preparation for dealing effectively with business German in the US and abroad.

3210. Conversation (3) P: GERM 2210, 2211, 2300, and 2420, 2421; or consent of dept chair. Direct and systematic use of spoken language. Intensive approach for developing functional levels of communication in German.

3330. Composition and Advanced Grammar (3) (WI) P: GERM 2210, 2211, 2300, and 2420, 2421; or consent of dept chair. Principles of effective writing in German and advanced review of grammar. Emphasis on syntax, forms, and usage.

3340. Civilization of the German-Speaking World (3) (GE: HU) P: GERM 2210, 2211, 2300, and 2420 or consent of dept chair. Survey of the cultural development of the German-speaking peoples from the Germanic tribes to the reunification of East and West Germany through the reading and discussion of significant texts.

3350. Introduction to Translation Studies (3) (WI) For students of all disciplines who expect to do specialized reading or research work in German. P: GERM 2210, 2211, 2300, and 2420, 2421; or consent of dept chair. Translating skills from German to English. Emphasis on grammar and style, approaches to vocabulary learning, and decoding difficult structures. Readings from areas of general knowledge.

3510. Introduction to German Literature (3) (GE:HU) P: GERM 2420, 2421; or consent of dept chair. Development of reading skills necessary for understanding genre, concepts of literary structure, and criticism through analysis of selected writings.

3520. The German-Speaking World from the Beginning to the Nineteenth Century (3) (GE:HU) P: GERM 2210, 2211, 2300 and 2420, 3510 or consent of dept chair. Emphasis on literary masterpieces.

3530. The German-Speaking World of the Nineteenth Century (3) (WI) (GE:HU) P: GERM 2210, 2211, 2300 and 2420, 3510 or consent of dept chair. Emphasis on literary masterpieces.

3540. The German-Speaking World from 1900 to 1945 (3) (GE:HU) P: GERM 2210, 2211, 2300 and 2420, 3510 or consent of dept chair. Emphasis on literary masterpieces.

3550. The Contemporary German-Speaking World (3) (WI) (GE:HU) P: GERM 2210, 2211, 2300, and 2420, 3510 or consent of dept chair. Emphasis on literary masterpieces.
3700. Special Topics (3) May be repeated for maximum of 6 s.h. with change of topic. P: GERM 2210, 2211, 2300, and 2420, 3510 or consent of instructor. Topics relating to language, literature, culture, or civilization of a German-speaking country. Topics vary.

4350. Phonetics and History of the German Language (3) P: GERM 3210 or consent of dept chair. Introduces Germanic linguistics and history of German language. Emphasis on phonetics of modern German.

4611. Teaching Second Languages in Grades K-12 (5) (F) 5 lectures per week and 10 lab hours per semester. Includes 10 hours of field experience. May not count toward BA or minor. P: 18 s.h. above GERM 1004 or consent of instructor. Modern methodologies, techniques and strategies, instructional resources, and evaluation procedures for teaching second languages in grades K-12.

4700. Special Topics in German Studies (3) May be repeated for a maximum of 6 s.h. with change of topic. P: Consent of dept chair. Selected topics relating to the language, literature, culture, or civilization of the German-speaking world. Topics vary.

4880. Internship in German (10) Full-time, semester-long internship. P: Admission to upper division; GERM 2210, 2211, 2420, 3210, 3330, 3510; 6 s.h. GERM literature above 2999; 12 s.h. 9 s.h. GERM electives above 2999. Observation and supervised internship in assigned German K-12 public school classroom.

4881. Internship Seminar: Issues in German Teaching (1) P: Admission to upper division; C: GERM 4880. Individualized study of problems or issues related to teaching German.

4882, 4883, 4884. Internship for Professions (1,1,1) (F,S,SS) Supervised internship in appropriate professional setting during junior or senior year of German degree program. P: Consent of dept chair. Fields may include but are not limited to business and industry.

4950, 4951, 4952, 4953, 4954. Directed Readings in German (1 each) P: Consent of dept chair. In-depth exploration of selected aspect of German culture (literature, civilization, etc.).

4990. Honors (3) P: Minimum 3.5 GPA in German. Independent study under direction of faculty member in student’s major area of interest. Research paper required.

5700. Selected Topics (3) May be repeated for maximum of 6 s.h. with change of topic. P: Consent of dept chair. Selected topics relating to language, literature, culture, or civilization of a German-speaking country. Topics vary.

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**MD/7 Initiative**

Catalog Page 28, PDF Page 40

**ADDITIONAL ADMISSION REQUIREMENTS FOR STUDENTS ENTERING THE DEGREE IN THREE PROGRAM**

Students accepted into the program generally meet the following criteria:

1. High School cumulative GPA of 3.5 (on 4.0 scale)
2. SAT total score of 1200
3. High school rank in the top 10 percent of the senior class.

Students whose high school standing falls slightly below the criteria listed above may be nominated by their high school counselor for acceptance into the program. Letters of nomination should be sent to East Carolina University Degree in Three Program, 215 Spilman Building, East Carolina University, Greenville, NC 27858.

**ADDITIONAL ADMISSION REQUIREMENTS FOR STUDENTS APPLYING FOR THE MD/7 INITIATIVE**

Students accepted in the program will need to meet the following criteria:

1. A minimum High School cumulative GPA of 3.5 (on a 4.0 scale)
2. SAT total score of at least 1200
3. High school rank in the top 10 percent of the senior class

Catalog Page 28, PDF Page 40

**ADDITIONAL ADMISSION REQUIREMENTS FOR STUDENTS ENTERING THE DEGREE IN THREE PROGRAM**

Students accepted into the program generally meet the following criteria:

1. High School cumulative GPA of 3.5 (on 4.0 scale)
2. SAT total score of 1200
3. High school rank in the top 10 percent of the senior class.

Students whose high school standing falls slightly below the criteria listed above may be nominated by their high school counselor for acceptance into the program. Letters of nomination should be sent to East Carolina University Degree in Three Program, 215 Spilman Building, East Carolina University, Greenville, NC 27858.

**ADDITIONAL ADMISSION REQUIREMENTS FOR STUDENTS APPLYING FOR THE MD/7 INITIATIVE**

Students accepted in the program will need to meet the following criteria:

4. A minimum High School cumulative GPA of 3.5 (on a 4.0 scale)
5. SAT total score of at least 1200
6. High school rank in the top 10 percent of the senior class

Catalog Page 43, PDF Page 53

Academic regulations and policies, university calendars, and student services described in this catalog are applicable to all students, except where otherwise indicated. The on-line distance education orientation site, www.ecu.edu/online/orientation, includes information on e-mail, Blackboard, and information technology policies; academic and administrative services; and library services.

Students must use their assigned ECU e-mail account and a compatible browser to access the ECU e-mail and One Stop web sites. Minimum and recommended technology requirements for on-line programs may be found at www.options.ecu.edu/internet_course/technology.htm. On-line services provided for distance education may be impacted by the quality of service rendered by the individual’s Internet provider. Students who have technical problems accessing the ECU web page should telephone the ITCS Help Desk, 252-328-6401. Additional technology requirements are listed in each degree program. Prerequisite skills for individual courses are listed in course descriptions.

**MD/7 INITIATIVE**

https://author.ecu.edu/cs-acad/fservice/cu11_03.cfm
Students who meet the criteria for admittance into the MD/7 initiative and indicate they wish to pursue a pre-medical undergraduate program will be sent a letter of invitation to apply for the MD/7 initiative during the first semester of their freshman year. Students participating in this initiative will meet on a regular basis with the pre-health advisor in order to help them tailor their programs and assist in application procedures. Students also will be expected to gain undergraduate experience in research, community and college service, and leadership.

Students in the MD/7 initiative are required to maintain an ECU email address in order to facilitate communication. Messages need to be checked periodically as updates, schedules, and general information about the program will be sent via email. Email messages will be sent only to ECU email addresses.

Catalog Page 69, PDF Page 77

STUDENT LEADERSHIP DEVELOPMENT PROGRAMS

Realizing that a fulfilling campus experience can assist in the recruitment, retention, and graduation of academically proficient and talented students, the Office of Student Leadership Development Programs supports the academic mission of the university by providing quality leadership education experiences and providing assistance to benefit extra-curricular student organizations.

Student leadership development programs offer a wealth of programs, including workshops, seminars, and speakers on various topics related to leadership. In addition, the office is home to a leadership library and numerous resources for student leaders and student organizations. For more information, telephone 252-328-4796 or visit www.clubhouse.ecu.edu.

MD/7 INITIATIVE

East Carolina University, in conjunction with The Brody School of Medicine (BSOM at ECU), is pleased to offer a pre-med initiative that will allow highly qualified students to complete both their undergraduate and medical degrees in only seven years (the MD/7 program). Under this plan, exceptionally capable students at ECU may apply to BSOM at the end of their sophomore year. All four previous semesters must be completed at ECU, and should include all prerequisite courses for medical school (one year each of General Biology or Zoology, General Chemistry, Organic Chemistry, and Physics - all with laboratories - and English). Accepted MD/7 students are assured a place in the entering class of the School of Medicine the following year if they successfully complete their junior year of undergraduate studies at ECU and fulfill all other MD/7 requirements. Upon successful completion of the first year of medical studies, MD/7 students will be awarded their appropriate bachelor's degrees.

Admission to the MD/7 program will be highly competitive. Eligible students will include North Carolina residents who have entered the University with a SAT score of 1200 or greater (or an ACT score of at least 27) and completed their freshman and sophomore years at ECU with a science and overall GPA of at least 3.5, along with a minimum GPA of 3.5 in the required prerequisite courses. Students with SAT scores of 1300 or better may not have to take the Medical College Admission Test (MCAT) to apply for the MD/7 program. This decision is at the discretion of the medical school's admissions office. Students with SAT scores of less than 1300 will need to sit for the MCAT and achieve a minimum score of 10 in all three numerically graded sections to be eligible for MD/7 application. Four slots in each BSOM entering class will be reserved for MD/7 students, who will be selected from the eligible pool after review of their applications and interviews by the BSOM Admissions Committee.

The BSOM Admissions Committee considers a number of variables in addition to indicators of intellectual ability in its evaluation of all applicants. Exposure to different fields of medicine, knowledge of medically-related issues and problems, altruism evidenced by community service, eventual career plans, and fit to the legislatively-mandated mission of BSOM are all important aspects that frequently determine the outcome of an individual’s application. Also required are letters of recommendation from ECU faculty that can provide insight into a student’s academic performance and personal qualifications for a career in medicine. Students should meet regularly with the ECU Pre-Medical Advisors to discuss the process of application.
To fulfill the requirements for their undergraduate degrees, accepted MD/7 students must have accumulated a minimum of 96 credits by the end of the junior year, including the majority of those required for the major and the minor, as well as those needed to fulfill all distribution requirements for graduation. A portion of this 96-credit requirement may be satisfied by AP credits, but the 96-credit requirement must include the following minimum number of graded credits: Biology, 8; Chemistry, 8*; Math, 3; and Physics, 4. Please note that this minimum required graded credits are **not** sufficient to meet the pre-requisites for medical school. Students must also maintain a cumulative GPA of at least 3.5 through the end of the junior year.

*Chemistry 2750, 2753 and Chemistry 2760, 2763 must be completed at ECU unless the student receives a special waiver for this requirement from the BSOM Admissions Committee.

**UNDERGRADUATE AND GRADUATE DEGREES, MINORS, AND CERTIFICATES**

All programs listed may be available on campus unless otherwise indicated. Programs designated by the icon have been approved for distance education delivery. indicates that only a portion of the degree program is available through distance education.

**MD/7 INITIATIVE**

The MD/7 initiative provides a remarkable plan of action for exceptionally talented students to begin medical school one year early. (Please refer to appropriate sections of the catalog for information on admission into the MD/7 Initiative, pre-health advisement, and a description in section 6.) Current participating undergraduate programs include: Biology, Chemistry, Environmental Health and Promotion, Environmental Health, Physics, and Neuroscience. Double asterisks in the Undergraduate and Graduate Degree Programs listing denote these programs.

**PRE-HEALTH PROFESSIONS CURRICULUM**

Philosophies of education and specific pre-medical and pre-dental course requirements vary among medical and dental schools, but all emphasize the sciences (mathematics, chemistry, biology, and physics), communication skills, social sciences, and the humanities. An understanding of concepts and a vocabulary in the sciences are mandatory, for medicine is based on principles stemming from these disciplines. Among American medical and dental schools, the most common requisites are physics, biology, general and organic chemistry, and English.

Most medical and dental schools recommend that students plan to obtain a four-year degree before initiating medical training. Students majoring in the sciences should try to obtain as broad a background in the social sciences and humanities as possible. Conversely, students majoring in a non-science area should take more than the minimum science courses. Students wishing to attend medical or dental school should ascertain the requirements and recommendations of schools of their interest and select the specific courses required. The following specific courses are suggested as a part of, or in addition to, the requirements for the major: MATH 1065; BIOL 1100, 1101, 1200, 1201; CHEM 1150, 1151, 1160, 1161, 2750, 2753, 2760, 2763; PHYS 1250, 1260 or 2350, 2360; 1251, 1261.

In addition to the standard four-year, pre-professional bachelor’s track for application to medical school, students may also choose to participate in the MD/7 initiative. This is a highly competitive accelerated program that allows students to compete for a chance to earn both the bachelor’s and the MD degree in seven years (3+4). If
they are one of the limited number chosen for early admission to medical school, they will be awarded their undergraduate degree after the successful completion of their first year of medical studies.

Participating programs in the MD/7 initiative include: Biology, Chemistry, Health Education and Promotion, Environmental Health, Neuroscience and Physics. A student would complete the pre-health curriculum as part of, or in addition to, the requirements from one of the above named programs of study and the general education requirements.

Participation in the MD/7 initiative will also involve first selection for shadowing opportunities and volunteer options in the medical arena as well as a strong academic base at the undergraduate level. Whether a student chooses to compete for early admission or to pursue the typical four-year undergraduate track, the MD/7 initiative is dedicated to providing an excellent undergraduate course of study for highly talented students who wish to pursue a career in the medical profession. Please refer section 6 of the catalog for a description of the MD/7 initiative including selection criteria.

p. 97 Catalog, PDF p. 104.

Students pursuing a BS Multidisciplinary Major in Neuroscience who are also participating in the MD/7 Program must meet all the specified requirements for their major. In addition, the student will need to fulfill the pre-health concentration by taking BIOL 1100/1101, BIOL1200/1201, PHYS1250/1251 and PHYS1260/1261. If the student is accepted for admission to the Brody School of Medicine under the MD/7 Program, the first year of medical studies will count toward fulfilling the remaining hours of electives as required for graduation.

NEUROSCIENCE STUDIES

Larry W. Means, Director, 133 Rawl Building

The neuroscience minor is designed to provide students with an introduction to the study of neuroscience at the various structural and functional levels of analysis, including molecular, cellular, integrative, and behavioral. (Students interested in a neuroscience major should see multidisciplinary studies, described above, and contact the neuroscience program director.)

The minor requires completion of core courses (20 s.h.), a laboratory course (2 or 3 s.h.), and an elective course (2-5 s.h.). In the event that courses required for the minor are also required for the student’s major, neuroscience elective courses should be taken so that a minimum of 24 s.h. of unique neuroscience courses are completed for the minor. The major adviser should send a potential minor to the director for advising. The minimum requirements for the minor are 24 s.h. as follows:

Catalog Page 110, PDF Page 117

Biology Requirements for Students Participating in MD/7 Initiative

Students pursuing a BS in Biology who are also participating in the MD/7 Program must meet all the specified core requirements for their major and cognate courses of MATH2121, MATH2122, CHEM2750/2753, CHEM2760/2763, PHYS1250/1251, and PHYS1260/1261. Students who complete these courses will also have fulfilled the pre-health concentration. In addition to the core requirements students will also complete 16 hours of Biology electives at the undergraduate level. If the student is accepted for admission to the Brody School of Medicine under the MD/7 Program, Doctoring I will count as Internship BIOL5995 to be repeated once for 2 hours credit, ANAT7210 will count in lieu of BIOL5450/5451, Medical Genetics will count in lieu of BIOL4040 with all other medical school courses during the first year counting as the remaining 20 hours of electives as required for graduation.

Biology Minor

Minimum requirement for biology minor is 24 s.h. of credit as follows:

1. Core ...............15 s.h.
BIOL 1100, 1101. Principles of Biology I (4.0) (F,S,SS) (GE:SC)
BIOL 1200, 1201. Principles of Biology II (4.0) (F,S,SS) (GE:SC)
BIOL 2250, 2251. Ecology and Ecology Laboratory (3.1) (F,S,SS)
BIOL 2300. Principles of Genetics (3) (F,S,SS) (P: 2 BIOL courses)
2. BIOL electives .. 9 s.h.

Minor programs consisting of course sequences in particular areas that include a minimum of 24 s.h. can be arranged with the approval of the biology undergraduate curriculum committee.

Catalog Page 112, PDF Page 119

Chemistry Requirements for Students Participating in MD/7 Initiative

Students pursuing a BA in Chemistry who are also participating in the MD/7 Program must meet all the above-specified requirements for their major and the math cognate. In addition, the student will need to fulfill the pre-health concentration by taking BIOL 1100/1101, BIOL1200/1201, PHYS1250/1251 and PHYS1260/1261. If the student is accepted for admission to the Brody School of Medicine under the MD/7 Program the first year of medical studies will count toward fulfilling the remaining 28 hours of electives as required for graduation.

BS in Chemistry
The BS degree in chemistry is the appropriate program for students considering advanced degree programs in chemistry, biochemistry, and other related fields or a professional career in chemistry. Graduates of this program meet certification requirements of the American Chemical Society. Students are strongly encouraged to pursue undergraduate research with a faculty member. Up to 6 s.h. of undergraduate research may be applied toward degree requirements. Information regarding undergraduate research may be obtained from the director of Undergraduate Studies. Students completing the BS degree are encouraged to consider some of the following courses as electives: COMM 2410 or COMM 2420; ITEC 3290 or ENGL 3820; MATH 2228, 3256, 4331; CHEM 4515, 4516, 4517; advanced 5000-level courses in chemistry; and BIOL 5800 or 5810. Minimum degree requirement is 126 s.h. of credit as follows:

p. 138 Catalog, PDF p. 145

Physics Minor

Minimum requirement for physics minor is 24 s.h. credit as follows:

1. Core ............... 10 s.h.
PHYS 1251, 1261. General Physics Laboratory (1,1) (F,S,SS) (GE:SC) (C for 1251: PHYS 1250 or 2350; C for 1261: PHYS 1260 or 2260)
PHYS 2350, 2360. University Physics (4,4) (GE:SC) (C for 2350: MATH 2121 or 2171; P for 2360: PHYS 2350)

2. PHYS electives above 2999 ...................................................................................................................... 14 s.h.
Bachelor of Science and Accelerated MS in Physics
Students working toward a BS degree in physics have the opportunity to earn an MS degree in two or three additional semesters of study. These students are encouraged to begin research projects as undergraduates and take advanced classes that can be used to waive some MS course requirements. As seniors they may be granted early admission to the MS program and would be eligible to receive paid teaching assistantships. To be enrolled in the MS program as a senior, students must be within 6 s.h. credit of completing all undergraduate degree requirements. Applications to the MS program should be submitted during the first semester of the senior year and must include GRE scores.

Physics Requirements for Students Participating in MD/7 Initiative

Students pursuing a BA or BSAP in Physics who are also participating in the MD/7 Program must meet all the above-specified requirements for their major and the math cognate. It should also be noted that students coming in under the MD/7 Program in Physics will need to have obtained prior credit for MATH1065 and MATH1085. In addition, the student will need to fulfill the pre-health concentration by taking BIOL 1100/1101, BIOL1200/1201, CHEM1150/1151, CHEM1160, 1161, CHEM2750/2751 and CHEM2760/2763. If the student is accepted for admission to the Brody School of Medicine under the MD/7 Program the first year of medical studies will count toward fulfilling the remaining 28 hours of electives as required for graduation.
p. 232 Catalog, PDF p. 238

4. Cognates        26 s.h.
BIOL 1050. General Biology (3) (F,S,SS) (GE:SC)
BIOL 1051. General Biology Laboratory (1) (F,S,SS) (GE:SC)
BIOL 2110, 2111. Fundamentals of Microbiology (4,0) (F,S) (P: 4 s.h. in BIOL; 8 s.h. in CHEM)
BIOL 2130. Survey of Human Physiology and Anatomy (4) (F,S,SS) (P: BIOL 1050, 1051; or 1100, 1101)
BIOS 1500. Introduction to Biostatistics (3) (F,S) (P: MATH 1065 or equivalent or consent of instructor) or MATH 2228.
Elementary Statistical Methods I (3) (F,S,SS) (P: MATH 1065 or equivalent)
CHEM 2650. Organic Chemistry for the Life Sciences (4) (F) (P: CHEM 1160, 1161)
CHEM 2651. Organic Chemistry Lab for the Life Sciences (1) (F) (C: CHEM 2650)
DSCI 2223. Introduction to Computers (3) (F,S,SS)
ITEC 3290. Technical Writing (3) (WI) (F,S,SS) (P: ENGL 1200)

5. Electives to complete requirements for graduation.

Health Education and Promotion Requirements for Students Participating in MD/7 Initiative

Students pursuing a BS in Health Education and Promotion who are also participating in the MD/7 Program must meet the specified requirements for their major. In addition, the student will need to fulfill the pre-health concentration requirements of BIOL1200/1201, CHEM1150/1151, CHEM1160, 1161, CHEM2750/2751 and CHEM2760/2763. Students in the pre-health professions concentration who have been accepted for admission to the Brody School of Medicine under the MD/7 Program may substitute the successful completion of the first-year of medical school curriculum for HTLH4991 (12 s.h.) and 16 s.h. of electives.

p. 234 Catalog, PDF p. 240

Worksite Health Promotion (25 s.h.):
EXSS 3805. Physiology of Exercise (3) (F,S,SS) (P: BIOL 2130, 2131; health and human performance major or minor or consent of dept chair)
EXSS 4806. Exercise Evaluation and Prescription (4) (WI) (F,S,SS) (P: EXSS 4805; health and human performance major or minor; or consent of chairperson)
HLTH 4200. Planning and Evaluation in Worksite Health Promotion (3) (F,S,SS) (P: Completion of core courses)
HLTH 4600. Data Analysis for Health Promotion Programming (3) (S) (C: HLTH 4700)
HLTH 4700. Practicum Seminar in Worksite Health Education (3) (S) (P: HLTH 4200)
HLTH 5200. Health Education in the Workplace (3) (P: Undergraduates must have consent of instructor)
Choose 6 s.h. from:
ASIP 2112. Introduction to Information Processing Technology (3) (F,S,SS) or DSCI 2223. Introduction to Computers (3) (F,S,SS)
EHST 3100. Injury Control (3) (S) (P: Consent of dept chair) or ITEC 3292. Industrial Safety (3) (F,S,SS) (P: Junior standing and completion of 12 s.h. of industrial technology courses)
FINA 2244. Legal Environment of Business (3) (F,S,SS)
MGMT 3202. Fundamentals of Management (3) (F,S,SS) (P: ECON 2113)

4. Electives: It is recommended that courses be taken which reinforce content in the physical, social, and behavioral sciences, or provide the student with a community health specialty area such as gerontology, environmental health, or health promotion. Number of elective hours varies by concentration.

Environmental Health Requirements for Students Participating in MD/7 Initiative

Students pursuing a BS in Environmental Health who are also participating in the MD/7 Program must meet the specified requirements for their major. In addition, the student will need to fulfill the pre-health concentration by
taking BIOL 1100/1101 (pre-med students may substitute BIOL1100/1101 for the cognate requirement of BIOL1050/1051). BIOL1200/1201, CHEM1150/1151, CHEM1160, 1161, CHEM2750/2751 and CHEM2760/2763. Students accepted for admission to the Brody School of Medicine under the MD/7 Program may substitute the successful completion of the first-year of medical school curriculum for EHST4990 and remaining 19 s.h. required for graduation.

Department of Industrial Technology

NOTE: Please place this on catalog page 265

Department of Industrial Technology

Dr. Paul Kauffmann, Chairperson. Science and Technology Complex

Admission

Admission to the university does not guarantee admission to the BSE program. Upon admission to the university, students who have 1050 SAT scores or equivalent and have completed the second year of high school algebra with a grade of B or better may apply for admission to the engineering program. Students who have an associate degree from an approved pre-engineering program will be directly admitted into the BSE program. All other students with transfer hours will be individually evaluated for program credit. Current ECU students transferring from the General College or other campus programs must have a minimum 2.5 GPA and have completed prerequisites for MATH 2171 with a grade of B or better.

Entering freshmen should submit an ECU admission application package, high school transcript, and SAT and/or ACT scores for admission consideration. Associate degree students should submit transcripts and two letters of recommendations from faculty. ECU general college students should obtain permission from the program coordinator.

BSE (BS in Engineering)

Minimum degree requirement for the engineering program is 128 s.h. credit as follows:

1........ General education requirements (See Section 4, General Education Requirements for all Baccalaureate Degree Programs.), including those listed below.................................................. 42 s.h.
   BIOL 1100, 1101. Principles of Biology (4,0) (F,S,SS) (GE:SC)
   CHEM 1150, 1151. General Chemistry and Laboratory I (3,1) (F,S,SS) (GE:SC) (P: CHEM placement test or passing grade in CHEM 0150; P/C: MATH 1065; C for 1150: CHEM 1151; C for 1151: CHEM 1150)
   COMM 2410. Public Speaking (3) (F,S,SS) (GE:FA) or COMM 2420. Business and Professional Communication (3) (F,S,SS) (GE:FA)
   MATH 1083. Introduction to Functions (3) (F,S,SS) (GE:MA) (P: Consent of dept chair)
   PHIL 2275. Professional Ethics (3) (WI*) (F,S,SS) (GE:HU)
   PSYC 1000. Introduction to Psychology (3) (F,S,SS) (GE:SO)
   PSYC 3241. Personnel and Industrial Psychology (3) (F,S,SS) (GE:SO) (P: PSYC 1000 or 1050)

   For Engineering Management Concentration:
   ECON 2113. Principles of Microeconomics (3) (F,S,SS) (GE:SO)
2. Engineering Foundation ........................................................................................................ 33 s.h.
   ISEE 1010. Integrated Collaborative Engineering I (6) (F)
   ISEE 1020. Integrated Collaborative Engineering II (6) (P/C: ISEE 1010; MATH 2171)
   ISEE 2010. Integrated Collaborative Engineering III (4) (F) (P/C: ISEE 1020; MATH 2172; PHYS 2350)
   ISEE 2020. Integrated Collaborative Engineering IV (4) (S) (P/C: ISEE 2010; PHYS 2360)
   ISEE 3010. Engineering Systems and Problem Solving (3) (F) (P: Engineering Majors Only)
   ISEE 3020. Information System Engineering (3) (S) (P: ISEE 3010)
   ISEE 4010. Senior Capstone Design Project I (2) (F) (P: ISEE 3020)
   ISEE 4020. Senior Capstone Design Project II (3) (2) (S) (P: ISEE 4010)
   ITEC 3290. Technical Writing (3) (WI) (F, S, SS) (P: ENGL 1200)

3. Cognates ............................................................................................................................ 20 s.h.
   MATH 2171. Calculus I (4) (F, S, SS) (GE:MA) (P: MATH 1083 or 1085 or 2122 with a minimum grade of C)
   MATH 2172. Calculus II (4) (F, S, SS) (GE:MA) (P: MATH 2171 or MATH 2122 with consent of instructor)
   MATH 3100. Methods for Engineers/Scientists (4)
   PHYS 2350, 2360. University Physics I, II (4,4) (F, S, SS) (GE:SC) (C: MATH 2121 or 2171; P for PHYS 2360: PHYS 2350)

4. Concentrations .................................................................................................................. 33 s.h.

Biomedical Engineering:
   BIME 3000. Introduction to Biomedical Engineering (3) (F) (P: BIOL 2130; SYSE 3010)
   BIME 4000. Biomedical Instrumentation (3) (S) (P: BIME 3000)
   27 s.h. Cognates as follows:
      BIOL 1200, 1201. Principles of Biology II (4.0) (F, S, SS) (GE:SC)
      BIOL 2130. Survey of Human Physiology and Anatomy (4) (F, S, SS) (GE:SC) (P: BIOL 1050, 1051; or 1100, 1101)
      CHEM 1160, 1161. General Chemistry and Laboratory II (3,1) (F, S, SS) (GE:SC) (P: CHEM 1150, 1151; C for 1160: CHEM 11612; C for 1161: CHEM 1160; RC: MATH 1083 or 1085)
      CHEM 2750. Organic Chemistry I (3) (F, S, SS) (P: CHEM 1160, 1161; C: CHEM 2753)
      CHEM 2753. Organic Chemistry Laboratory I (1) (F, S, SS) (C: CHEM 2750)
      CHEM 2760. Organic Chemistry II (3) (F, S, SS) (P: CHEM 2750; C: CHEM 2763)
      CHEM 2763. Organic Chemistry Laboratory II (1) (F, S, SS) (P: CHEM 2750, 2753; C: CHEM 2760)
      CHEM 2770. Biological Chemistry (3) (F, S) (GE:SC) (P: CHEM 2650 or 2760)
      CHEM 2771. Biological Chemistry Laboratory (1) (F, S) (GE:SC) (C: CHEM 2770)
      MATH 3307. Mathematical Statistics I (3) (F, S) (P: MATH 2172)

Engineering Management:
   ENMA 3000. Introduction to Engineering Management (3) (F) (P: Engineering Majors Only)
   ENMA 4000. Quality Systems Design (3) (S) (P: Engineering Majors Only)
   SYSE 3060. Systems Optimization (3) (F) (P: MATH 3100, 3307)
   24 s.h. Cognates as follows:
      ACCT 2101. Survey of Financial and Managerial Accounting (3) (F, S) (P: MATH 1065 or 1066)
      ELEC 3300. Information Technology Project Management (3) (S) (WI) (P: ENGL 1200; DSCI 2223 or ITEC 2000)
      FINA 2244. Legal Environment of Business (3) (F, S, SS)
      FINA 3004. Survey of Financial Management (3) (F, S) (P: ACCT 2101 or 2401; ECON 2113; MATH 2283)
      MATH 2283. Statistics for Business (3) (F, S, SS) (P: MATH 1065 or 1066 or equivalent)
      MGMT 3202. Fundamentals of Management (3) (F, S, SS) (P: ECON 2113)
      MGMT 4252. Entrepreneurship (3) (WI) (F) (P: FINA 3724; MGMT 3202; MKTG 3832)
      MKTG 3832. Marketing Management (3) (F, S, SS) (P: ECON 2113)
**Systems Engineering:**
- SYE 3010. Principles and Methods of Systems Engineering (3) (F) (P: CICE 3010)
- SYE 3040. Introduction to Dynamic Systems and Controls (3) (S) (P: MATH 3100; SYE 3060)
- SYE 3060. Systems Optimization (3) (F) (P: MATH 3100, 3307)
- SYE 4000. Integrated Systems Engineering (3) (S) (P: SYE 3010)
- SYE 4010. Human-Machine Systems: Design and Analysis (3) (F) (P: SYE 3010; MATH 3307)
- SYE 4065. Discrete System Simulation (3) (S) (P: MATH 3307)

15 s.h. Cognates as follows:
- ELEC 3300. Information Technology Project Management (3) (S) (WI) (P: ENGL 1200; DSCI 2223 or ITEC 2000)
- MATH 3307. Mathematical Statistics I (3) (F,S) (P: MATH 2172)

9 s.h. of 3000 or 4000 Technical Electives as approved by the Academic Advisor  

**New courses**
cat page no. 265 (all courses)

**ICEE 1010. Integrated Collaborative Engineering I (6)(F)** 4 lecture and 4 lab hours per week. C: MATH 1083. Introduces engineering profession and basic tools and concepts of engineering. Team taught, providing immersive and hands-on experience in engineering practice areas including graphics, professional practice, environmental issues, systems thinking and basic concepts in machinery, controls, digital circuits, and data analysis.

**ICEE 1020. Integrated Collaborative Engineering II (6)(S)** 4 lecture and 4 lab hours per week. P: ICEE 1010. C: MATH 2171. Basic engineering concepts of project analysis and business planning for engineering entrepreneurship. Tools of design analysis involving static forces, stress, shear, torsion and moments. Lab covers use of spreadsheets to evaluate engineering alternatives and mathematical analytical software plus analysis of engineering materials, including tests of stress, fastening methods, and fabrication.

**ICEE 2010. Integrated Collaborative Engineering III (4) (F)** 3 lecture and 2 lab hours per week. P: ICEE 1020. C: MATH 2172; PHYS 2350. Covers advanced topics in engineering fundamentals in particle and rigid body dynamics, and thermal and fluid systems. Lab covers design related kinematics, measurement of thermal and fluid system characteristics, and hydraulic and pneumatic component applications.


**ICEE 3010. Engineering Systems and Problem Solutions (3)(F) P: Engineering Majors Only.** Explores systems approach to design, analysis, and engineering of complex systems. Prepares student to conduct and manage a systems analysis process, including selection of appropriate system analysis methods to formulate, design, and manage resolution of complex system based problems.

**ICEE 3020. Information Systems Engineering (3)(S)** P: ICEE 3010. Fundamental knowledge of information systems, including formal systems and models. Use of data, information, and knowledge in organizations, information lifecycle; collection, storage, processing, retrieval, delivery; and overview of the various components of an information infrastructure. Includes computing platforms, software
architectures, and telecommunications networks. Introduces integration and acquisition of information for decision-making using information technology.

ICEE 4010. Senior Capstone Design Project I (2)(F) P: ICEE 3020. Senior capstone course involves open-ended design project, exposing students to practice of engineering design and problem solving. Emphasis on real problems and working with real clients. Students required to visit facilities, interact with client employees, determine on-site data measurement strategies, and perform any necessary literature search. Develop proposal for project to be performed in ICEE 4020.

ICEE 4020. Senior Capstone Design Project II (2)(S) P: ICEE 4010. Senior capstone course involves open-ended design project, exposing students to practice of engineering design and problem solving. Emphasis on real problems and working with real clients. Students required to visit facilities, interact with client employees, determine on-site data measurement strategies and perform any necessary literature search. Perform and complete project proposed in ICEE 4010.

BIME 3000. Introduction to BioMedical Engineering (3)(F) P: BIOL 2130, SYSE 3010. Application of fundamental engineering skills to solve problems in medicine and biology. Introduces students to a wide range of state-of-the-art applications in biomedical engineering and promotes understanding of interdisciplinary nature of the field. Topics covered include medical instrumentation and design, biomechanics, biomaterials, mass transport, application of computers in medicine, artificial implants, medical imaging, and medical ethics.

BIME 4000. BioMedical Instrumentation (3)(S) P: BIME 3000. Examines array of instrumentation and techniques used in acquisition, processing, and presentation of biomedical signals. Topics include transducers, sensors, Fourier analysis, the ECG signal, flow measurement, medical imaging, and biosensors. Lab covers amplifiers, bridge circuits, and measurement of physical parameters (temperature, pressure, strain) and electrophysiological signals.

ENMA 3000 Introduction to Engineering Management (3)(F). P: Engineering Majors Only. Introduces principles of management and organization as applicable to engineering profession. Special emphasis on project management, systems engineering and analysis, team building, quality leadership, planning, and quantitative decision making. Includes topic exercises, case studies, and extensive writing assignments.


SYSE 3010. Principles and Methods of Systems Engineering (3)(F) P: ICEE 3010. Examines variety of systems engineering topics, extending work completed in previous SYSE courses. Areas of development include systems engineering foundations, systems engineering methodologies and processes, limitations of systems engineering for complex systems, "ilities" for design of complex systems, human element in systems engineering, complex system transformation, interoperability and system architecture, planning for systems engineering, risk analysis and management, systems engineering capability maturity assessment and development, organization for performing systems engineering, and introduction to system of systems engineering.

SYSE 3040. Introduction to Dynamic Systems and Controls (3)(S). P: MATH 3100, SYSE 3060. Covers application of mathematical and analytical tools to analyze and design automated control systems for dynamic systems. Topics include block diagrams, transfer functions, stability, time response, frequency domain analysis, and other topics required to design control systems for physical systems.
SYSE 3060. System Optimization (3)(F) P: MATH 3100, 3307. Introduces mathematical tools applied to system optimization, including problem formulation, identification of decision variables, use of graphical methods, linear programming, concepts of duality, and sensitivity analysis. Applications include transportation, network analysis, project management and other engineering areas.

SYSE 4000. Integrated Systems Engineering (3)(S) P: SYSE 3010. Explores life cycle of systems; generation and analysis of life cycle requirements and development of functional, physical, and operational architectures for the allocation and derivation of component-level requirements for the purpose of specification production. Examines interfaces and development of interface architectures. Introduces and uses software tools for portions of systems engineering cycle.

SYSE 4010. Human-Machine Systems: Design and Analysis (3)(F) P: MATH 3307; SYSE 3010. Introduces measurement, evaluation, implementation, communication, equipment, and data for developing and implementing human/machine/environment systems in industrial and consumer contexts. Explores techniques to assess visual, auditory, cognitive, and physical capabilities of individuals. Emphasizes systems approach, with a special interest in the human/machine interface. Explores interaction of environment and individual to enable designers and/or managers to reduce errors, increase productivity, and enhance both safety and comfort, while performing tasks.

SYSE 4065. Discrete System Simulation (3)(S) P: MATH 3307. Approaches to computer simulation models, with special emphasis on discrete event simulation. Covers model building, data integration, model verification and validation, and applications to engineering and management problems.