Addictions Counselor Preparation

Professional Certification Program

Certificate

Contact:
Kevin Peterson, Professor and Chair, Department of Psychology

- You cannot major or minor in addictions counseling.
- You may receive credit-by examination for the following courses: PSYC 386, 387, 388, 389, 417.

Addictions Counselor Preparation

The Board of Professional Counselors and Therapists oversees the following regulations for Addictions Counselors in Maryland. There are three levels of certification, two of which are relevant to the undergraduate student and are briefly described below. For complete requirements for certification, please contact:

Board of Professional Counselors and Therapists
4201 Patterson Avenue
Baltimore, Maryland 21215-2299
(410) 764-4732

Certified Supervised Counselor – Alcohol and Drug (CSC-AD):

15 credit hours of alcohol and drug counselor training required and an associate's degree in a health or a human service counseling field.

Certified Associate Counselor – Alcohol and Drug (CAC-AD):

20 credit hours of alcohol and drug counselor training required and a bachelor's degree in a health or human services counseling field.

At FSU, students majoring in psychology or social work are automatically eligible, while majors in law and society or sociology will be considered on a case-by-case basis. Completing one of these degree programs AND taking the required alcohol and drug counselor training courses, are the first steps in meeting certification requirements. At the bachelor's degree level you must also have at least three years or 3000 hours of supervised experience and two years of the experience must have been completed after the award of the degree. You will also have to pass an examination selected by the Board.

The credit hour requirement must be satisfied from the following content areas. Each area is followed by the appropriate FSU course(s); all are 3 credit courses except Ethics. Please be aware that although bachelor's degree counselors need only 20 credit hours from the following list to satisfy the course requirement, **your examination will cover ALL CONTENT AREAS.**

1. Pharmacology of Psychoactive Drugs	PSYC 386
2. Individual Counseling Techniques	PSYC 410, SOWK 379
3. Group Therapy Techniques	PSYC 385, SOWK 473
4. Abnormal Psychology	PSYC 417
5. Addictions Treatment Delivery	PSYC 387
6. Treatment Issues and Theory in Addictions	PSYC 388
7. Family Counseling*	no undergraduate course offered
8. Theories of Counseling and Psychotherapy	no undergraduate course offered
9. Human Life Span Development	PSYC 210 and 212, SOWK 375
10. Ethics for the Addiction Counselor *(1 credit hour)*	PSYC 389

** Although FSU does not currently offer an undergraduate course in family counseling, SOWK majors taking SOWK 470, Generalist Practice with Individuals and Families, will find this course helpful in their preparation for family counseling issues covered on the examination.*

- Since the Addictions Counseling program is a regional collaboration with Allegany College of Maryland, with shared courses and faculty, you may count enrollments at either Frostburg State University or Allegany College of Maryland to meet the requirement that at least one-half of the credit hours required in the certificate be completed in residence. In addition, grades from courses completed while enrolled through Allegany will count in determining whether you meet the 2.0 minimum grade point average in certificate courses.

Addictions Counseling Certificate

If you would like to get a head start on professional certification for addictions counselors, you may complete the following undergraduate certificate as a degree-seeking or non degree-seeking student. You still must complete a bachelor's degree in one of the human services fields noted above as well as complete additional course work in order to sit for the state exam.

Required Courses: *(16 hours)*

PSYC 150 General Psychology
PSYC 386 Drugs and Human Behavior
PSYC 387 Addictions Treatment Delivery
PSYC 388 Treatment Issues and Theory in Addictions
PSYC 389 Ethics for the Addiction Counselor

ONE of the following:
SOWK 379 *or* PSYC 410 Foundations for Generalist Practice *OR* Introduction to Counseling
SOWK 473 *or* PSYC 385 Generalist Practice with Groups *OR* Group Processes

African American Studies

Minor

	MINOR
Hours Required in African American Studies:	6
Hours Required in Other Departments:	12
Total Hours Required:	**18**

Coordinator:
James Saku, Associate Professor
Department of Geography

Professor:
Bullamore (Geography)

Associate Professors:
Makang (Philosophy),
Moore (Sociology),
O'Rorke (Political Science),
Redmond-Matz (Psychology),
Rhodes (Visual Arts),
Saku (Geography)

Assistant Professor:
Abbay (History),
Branam (English)
Rogers Thomas (Sociology)

- You may minor in African American Studies. There is no major available.
- All courses in African American Studies may be taken whether or not you wish to pursue the minor.
- A listing of Special Topics courses offered for the minor in future semesters is available through the Coordinator.

Summary of Requirements for Minor in African American Studies

Minor

1. Required Core Courses: *(6 hours)*

AAST 200 Introduction to African American Studies *(GEP Group F)*
AAST 300/HIST 301 Traditional Africa

2. Elective Courses: *(12 hours)*

AAST 400 Africans of the Diaspora *(GEP Group F)*
AAST 490 Topics in African American Studies
AAST 494 AAST Practicum
ART 302 Artistic Traditions: Africa and the Americas *(GEP Group F)*
ENGL 231 African American Literature
GEOG 324 Urban Geography
GEOG 403 Geography of Sub-Saharan Africa
HIST 453 Contemporary Africa
PHEC 415 The Black Athlete in American Society
PHIL 311 Asian and African Philosophy *(GEP Group F)*
POSC 330 Politics of Africa
PSYC 418 Social Psychology
PSYC 450 Multicultural Counseling
SOCI 305 Racial and Cultural Minorities *(GEP Group F)*
SOCI 306 Sociology of African Americans
SOCI 307 African Americans of Appalachia

Special Topics courses numbered 290, 403, 490, or 491 in the participating departments when approved by Coordinator.
Independent Studies courses numbered 499 when approved by the Coordinator, limited to one 3-hour total enrollment.

Art & Design

Major

Teaching Certification Option

	MAJOR	FOR TEACHING CERT. OPTION
Hours Required in Art:	63	63
Hours Required in Other Department	0	38.5
Total Hours Required:	**63**	**101.5**

Professors:
Brown, Davis, Dieruf, Rhodes (chair)

Associate Professor:
Hodges

Assistant Professors:
Filippone, Herzfeld

- If you complete the major in Art & Design, you will earn the Bachelor of Fine Arts (BFA) degree.
- Minors are offered in art history, fine arts, and graphic design. A certificate is offered in Computer Print Graphics. See separate sections of catalog.
- You must successfully pass the 30 hour Studio Focus Review and Senior Review.
- You must successfully complete ART 207 Graphic Design by the time you earn 45 credit hours. ART 207 also provides instruction in technology fluency and information literacy for BFA candidates.
- Only courses in which a grade of C or better is earned may count towards satisfaction of major and minor requirements.
- Optional internships are available to qualifying students, particularly in graphic design. Student interns have been placed in government services, design studios, public relations firms and advertising businesses.
- You may elect the teaching certification option (internship required) as part of your bachelor's degree or complete the MAT Secondary/K-12 in art education (See Graduate Catalog).

Summary of Requirements for BFA in Art & Design

Major

1. Basic Courses: *(15 hours)*
ART 104 Two-Dimensional Design
ART 105 Three-Dimensional Design
ART 212 Drawing
ART 412 Advanced Drawing
ART 207 Graphic Design (*Tech. Fluency*)

2. Introductory Studio: *(15 hours)*
Choose five courses from:
ART 202 Ceramics
ART 216 Illustration
ART 221 Painting
ART 232 Printmaking
ART 235 Photography
ART 240 Sculpture
ART 307 Computer Graphics or ART 236 Digital Imaging
Note: Students wishing to specialize in Graphic Design must include ART 235, ART 307.
Students seeking certification to teach art must include ART 202, ART 221, ART 232, ART 240.

3. Studio Focus Review: *(0 hours)*
ART 291 Studio Focus Review

4. Art History and Critical Studies: *(12 hours)*
ART 301 Artistic Traditions: Asia (*GEP Group F*)
or ART 302 Artistic Traditions: Africa and the Americas (*GEP Group F*)
ART 360 Western Art History
ART 408 20th Century Art History
ART 415 Art Criticism

5. Advanced Studio Focus *(18 hours – 12 credit hours in focus and 6 credit hours in secondary area)*
***OR* Dual-Media Studio Focus+** *(18 hours – 9 credit hours in focus and 9 hours in secondary area)*
ART 402 Advanced Ceramics
ART 416 Advanced Illustration
ART ____* Advanced Graphic Design
ART 421 Advanced Painting
ART 432 Advanced Printmaking
ART 435 Advanced Photography
ART 440 Advanced Sculpture

*ART 407 Advanced Graphic Design: Print
*ART 414 Advanced Graphic Design: Interactive Multimedia Design
+ Note: Only students seeking certification to teach art may have a Dual-Media focus in Graphic Design.

6. Senior Portfolio: *(3 hours)*
ART 411 Senior Portfolio *(Capstone)* (*co-registration in ART 491 required*)

7. Senior Review: *(0 hours)*
ART 491 Senior Review *(co-registration in ART 411 required)*

Summary of Requirements for Teaching Certification Option in Art

If you wish to complete a Maryland State approved program in teaching Art, you must:

- Complete the BFA in Art and Design.
- Select the following courses in partial fulfillment of the Introductory Studio requirement:

  ART 202 Ceramics
  ART 221 Painting
  ART 232 Printmaking
  ART 240 Sculpture
- Meet the phase admissions requirements summarized in the Educational Professions section.
- Complete the professional education sequence described in Education: P-12 Programs.

Art History

Minor

	MINOR
Hours Required in Art:	**15-18**
Hours Required in Other Departments:	**3-0**
Total Hours Required:	**18**

Professors:
Brown, Davis, Dieruf, Rhodes (chair)

Associate Professor:
Hodges

Assistant Professors:
Filippone, Herzfeld

- Minors are also offered in fine arts and graphic design. A major is offered in Art & Design. See separate listings in this catalog.
- Only courses in which a grade of C or better is earned may count towards satisfaction of major and minor requirements.
- You cannot major in Art History.

Summary of Requirements for Minor in Art History

Minor

1. Basic Courses: *(3 hours)*
Choose from:
ART 100 Art Appreciation *(GEP Group A)*
HIST 100 The Twentieth Century World *(GEP Group B or Group F)*

2. Core Courses: *(12 hours)*
ART 301 Artistic Traditions: Asia *(GEP Group F)*
or ART 302 Artistic Traditions: Africa and the Americas *(GEP Group F)*
ART 360 Western Art History
ART 408 20th Century Art History
ART 415 Art Criticism

3. Elective: *(3 hours)*
Choose from:
ART 370 Women/Gender and the Visual Arts
ART 380 19th Century Art History
ART 430 Greek and Roman Art
ART 460 Renaissance and Baroque Art History

Biology

Major

Minor

Pre-health Professions Option

Concentrations in

- BIOTECHNOLOGY
- ENVIRONMENTAL SCIENCE

Teaching Certification Option

See related programs:

- ENVIRONMENTAL ANALYSIS & PLANNING
- ETHNOBOTANY
- FORESTRY
- INTERPRETIVE BIOLOGY & NATURAL HISTORY
- WILDLIFE & FISHERIES

Professors:
Raesly, Seddon (Chair), Serfass, Yoder

Associate Professors:
Fritz, Li, Pegg

Assistant Professors:
Ammer, Fiscus, Keller, Lambert, Puthoff

Instructor:
Brosi

- You may elect the teaching certification option (internship required). Select the biology major without concentration to meet certification requirements.

	For Major	For Minor	Pre-Health Prof. Option	Biotech. Concen.	Env. Science Concen.	Teaching Cert. Option
Hours Required in Biology:	40-41	24	40-41	43-44	42	40-41
Hours Required in Other Depts.:	32	0	32	39-40	43	74.5
Total Hours Required:	**72-73**	**24**	**72-73**	**82-84**	**85**	**114.5-115.5**

Summary of Requirements for Major/Minor in Biology

Major

1. Introductory Level Courses: *(8 hours)*
BIOL 149 General Biology I *(GEP Group C)*
BIOL 150 General Biology II

2. Advanced Level Courses: *(16 hours)*
BIOL 304 Microbiology
BIOL 310 Cell Biology
BIOL 340 General Ecology
BIOL 350 Genetics
BIOL 496 Seminar in Biology *(Capstone)*

3. Distribution Within Department: *(16-17 hours)*
Total of 4 courses in 3 groups; at least 1 in each group:

Group I
BIOL 302 Animal Physiology
BIOL 303 Plant Physiology

Group II
BIOL 411 Invertebrate Zoology
Either BIOL 327 Comparative Anatomy
or BIOL 426 Vertebrate Zoology

Group III
BIOL 311 Morphology of Fungi and Non-Vascular Plants
BIOL 312 Morphology of Vascular Plants

4. Elective Hours in Department: *(0 hours)*

5. Required Courses in Other Departments:

Chemistry: *(18 hours)*
CHEM 101, 102 General Chemistry *(CHEM 101-GEP Group C)*
CHEM 301, 302 Organic Chemistry

Mathematics: *(6 hours)*
MATH 209 Elements of Applied Probability & Statistics *(Core Skill 3)*
or MATH 219 Honors: Elements of Applied Probability & Statistics *(Core Skill 3)*
Select one from:
MATH 102 College Algebra *(Core Skill 3)*
MATH 103 Trigonometry
MATH 120 Pre-Calculus Mathematics *(Core Skill 3)*
or any course above 210

Physics: *(8 hours)*
PHYS 215, 216 General Physics I and II *(PHYS 215-GEP Group C)*
or PHYS 261, 262 Principles of Physics I and II *(PHYS 261-GEP Group C)*

Minor

1. Introductory Level Courses: *(8 hours)*
BIOL 149 General Biology I *(GEP Group C)*
BIOL 150 General Biology II

4. Elective Hours in Department: *(16 hours)*
Select from biology courses at the 200 level or higher.

- Biology is often selected as a major by students planning to enter medicine and other health professions careers. If you plan advanced study in the health professions, you should choose the pre-health professions option.
- If you are a pre-physical therapy or pre-occupational therapy student, you should consult individual allied health program listings for specific program requirements. If you are interested in pursuing graduate studies in other areas of Biology, you should not choose this option.

Pre-Health Professions Option for Biology Majors

(Pre-Dental, Pre-Medical, Pre-Optometry and Pre-Veterinary)

1. Introductory Level Courses: *(8 hours)*

BIOL 149 General Biology I *(GEP Group C)*
BIOL 150 General Biology II

2. Advanced Level Courses: *(28-29 hours)*

BIOL 302 Animal Physiology*
BIOL 304 Microbiology
BIOL 310 Cell Biology
BIOL 311 Morphology of Fungi and Non-Vascular Plants
or BIOL 312 Morphology of Vascular Plants
BIOL 327 Comparative Anatomy*
BIOL 340 General Ecology
BIOL 350 Genetics
BIOL 496 Seminar in Biology *(Capstone)*

3. Elective Hours in Biology Department: *(4 hours)*

Choose one course:
BIOL 306 Vertebrate Embryology
BIOL 404 Histology
BIOL 412 General Parasitology

**Only students interested in a career in Physical Therapy or Occupational Therapy should take BIOL 201 (Anatomy and Physiology I) and BIOL 202 (Anatomy and Physiology II) in place of BIOL 302 (Animal Physiology) and BIOL 327 (Comparative Anatomy). All other program requirements are the same as for the Pre-Health Professions Option for Biology Majors.*

4. Required Advanced Courses in Other Departments: *(32 hours)*

Same as major. See #5 above.

- The biotechnology concentration in biology offers you an interdisciplinary program with a strong emphasis on laboratory experiences in biology and chemistry, while maintaining a strong biology core. The option is best suited for students who wish to pursue an advanced degree in cell or molecular biology or to find employment in the biotechnology industry.

Summary of Requirements for Major in Biology - Biotechnology Concentration

1. Introductory Level Courses: *(8 hours)*

BIOL 149 General Biology I *(GEP Group C)*
BIOL 150 General Biology II

2. Advanced Level Courses: *(15 hours)*

BIOL 304 Microbiology
BIOL 310 Cell Biology
BIOL 340 General Ecology
BIOL 350 Genetics

3. Biotechnology Option: **(***17 hours)*

BIOL 401 Genetics Lab
BIOL 435 Molecular Biology
BIOL 437 Molecular Biology Seminar *(Capstone)*
BIOL 438 Biotechnology Laboratory *(3 hours)*
BIOL 440 Developmental Biology
BIOL 445 Immunology

4. Select one from: *(3-4 hours)*

BIOL 302 Animal Physiology
BIOL 303 Plant Physiology
BIOL 404 Histology
BIOL 436 Electron Microscopy
BIOL 499 Special Problems in Biology
or IDIS 493 Honors Thesis

5. Required Courses in Other Departments:

Chemistry: *(25 hours)*

CHEM 101 General Chemistry I *(GEP Group C)*
CHEM 102 General Chemistry II
CHEM 301 Organic Chemistry I
CHEM 302 Organic Chemistry II
CHEM 455 Biochemistry I
CHEM 456 Biochemistry Lab
CHEM 457 Biochemistry II

Mathematics: *(6-7 hours)*

MATH 209 Elements of Applied Probability & Statistics *(Core Skill 3)*
or Math 219 Honors: Elements of Applied Probability & Statistics *(Core Skill 3)*
Select one from:
MATH 220 Calculus for Applications I
MATH 236 Calculus I *(Core Skill 3)*

Physics: *(8 hours)*

PHYS 215, 216 General Physics I and II *(PHYS 215 - GEP Group C)*
or PHYS 261, 262 Principles of Physics I and II *(PHYS 261 - GEP Group C)*

- For students interested in the stewardship of natural resources with a greater emphasis on economic and political perspectives.
- This concentration allows you to choose electives in economics, political science and the humanities which potentially add a thematic direction to your degree.
- You should not choose this concentration if you are in pre-health professions or planning to attend a traditional biology graduate program.

Summary of Requirements for Major in Biology - Environmental Science Concentration

1. Introductory Level Courses: *(18 hours)*

BIOL 149 General Biology I *(GEP Group C)*
BIOL 150 General Biology II
ECON 201/211* Macroeconomics *(GEP Group D)*
GEOG 103/113* Physical Geography *(GEP Group C)*
POSC 110/112* Introduction to American Politics *(GEP Group D)*
or POSC 113/114* Introduction to World Politics *(GEP Group D)*
or POSC 131 Introduction to Comparative Politics *(GEP Group D or F)*

(Check the prerequisites for other POSC courses before choosing your introductory POSC course)

2. Advanced Level Courses: *(40 hours)*

BIOL 200 Scientific Investigation and Communication
BIOL 304 Microbiology
BIOL 310 Cell Biology
BIOL 340 General Ecology
BIOL 350 Genetics
BIOL 406 Ornithology
or BIOL 423 Mammalogy
or BIOL 426 Vertebrate Zoology
BIOL 425 Forest Ecology and Conservation
BIOL 450 Ecology and Management of Wildlife Populations
or BIOL 420 Fish Management and Culture
GEOG 473 Environmental Law
ECON 202 Microeconomics
BIOL 494 Field Experiences in Biological Sciences *(Capstone - 6 credits)*

3. Required Supporting Courses: *(18 hours)*

CHEM 101 General Chemistry I *(GEP Group C)*
CHEM 102 General Chemistry II
CHEM 420 Environmental Chemical Analysis
MATH 209/219* Elements of Applied Probability & Statistics *(Core Skill 3)*
MATH 102 College Algebra *(Core Skill 3)*
or MATH 103 Trigonometry
or MATH 120 Pre-Calculus Mathematics *(Core Skill 3)*
or any MATH course above 210

4. Electives: *(9 hours)*

Select at least three courses listed below. At least one course must be taken from each group.

Group I Advanced Economics

ECON 309 Comparative Economic Systems
ECON 405 Economic Growth and Development: The Developing Economies

Group II Advanced Political Science

POSC 330 Politics of Africa
POSC 331 Politics of Latin America
POSC 332 Politics of the Middle East
POSC 450 Environmental Public Policy
GEOG 407 Political Geography

Group III Advanced Humanities

ENGL 440 Literature of the Environment
HIST 309 World Environmental History
PHIL 315 Philosophy and the Environment

Summary of Requirements for Teaching Certification Option in Biology

If you wish to complete a Maryland State approved program in teaching Biology, you must:

- Complete the BA/BS in Biology (without concentration).
- Meet the phase admissions requirements summarized in the Educational Professions section.
- Complete the professional education sequence described in Education: Secondary School Programs.

Interpretive Biology and Natural History

Major

	MAJOR
Hours Required in Biology:	44-55
Hours Required in Other Departments:	23-30
Total Hours Required:	**74-78**

See related programs:

- BIOLOGY
  - -PRE-HEALTH OPTION
  - -BIOTECHNOLOGY
  - -ENVIRONMENTAL SCIENCE
- ENVIRONMENTAL ANALYSIS & PLANNING
- ETHNOBOTANY
- FORESTRY
- WILDLIFE & FISHERIES

Contact:
William L. Seddon, Professor (Chair), Department of Biology

Professors:
Raesly, Seddon (Chair), Serfass, Yoder

Associate Professors:
Fritz, Li, Pegg

Assistant Professors:
Ammer, Fiscus, Keller, Lambert, Puthoff

Instructor:
Brosi

Summary of Requirements for Major in Interpretive Biology and Natural History

Major

1. Introductory Level Courses: *(8 hours)*
BIOL 149 General Biology I (*GEP Group C*)
BIOL 150 General Biology II

2. Advanced Level Courses *(32-35 hours)*
BIOL 230 Wildlife Techniques
BIOL 309 General Entomology
BIOL 314 Plant Taxonomy
BIOL 334 General Animal Behavior
BIOL 340 General Ecology
BIOL 406 Ornithology
BIOL 411 Invertebrate Zoology
BIOL 426 Vertebrate Zoology
BIOL 494 Field Experiences in Biological Sciences *(minimum 3 credits) (Capstone)*

3. Electives:
Select 11-12 hours from among the following:
BIOL 305 Dendrology
BIOL 311 Morphology of Fungi and Non-Vascular Plants
BIOL 312 Morphology of Vascular Plants
BIOL 402 Evolution
BIOL 417 Ichthyology
BIOL 422 Herpetology
BIOL 425 Forest Ecology and Conservation
BIOL 423 Mammalogy
BIOL 430 Introductory Limnology
GEOG 208 Historical Geology
GEOG 445 Biogeography

4. Required Courses in Other Departments *(23 hours)*
CHEM 101 General Chemistry I *(GEP Group C)*
CMST 102/112 Introduction to Human Communication
COSC 100/110 Introduction to Computer Science *(Tech. Fluency)*
GEOG 103/113 Physical Geography *(GEP Group C)*
MATH 209/219 Elements of Applied Probability and Statistics (*Core Skill 3)*
RECR 330 Outdoor Education
RECR 342 Park and Facility Design

5. Suggested (Optional) Courses in Other Departments
ART 235 Photography
CMST 322 Presentational Communication
ENGL 336 Journalistic Writing
PHSC 210 Descriptive Astronomy
PHSC 211 Descriptive Astronomy Laboratory
RECR 201 Introduction to Recreation and Parks

Chemistry

Major

Minor

Track in:

- TRADITIONAL CHEMISTRY

Concentrations in:

- PROFESSIONAL CHEMISTRY
- BIOCHEMISTRY

Teaching certification option

Professors:
Larivee (Chair), F. Senese, Weser

Associate Professors:
Mumper, Simon

Assistant Professor:
Biser

- All chemistry majors must take the core courses and select either the Traditional Track, Professional Concentration, Biochemistry Concentration or Teaching Certification Option to fulfill requirements for the major. The Traditional Track is recommended for students wishing to double major.
- Chemistry is often selected as a major by students planning to enter health professions careers. The Biochemistry Concentration is a suitable choice. (See the section on Health Professions Preparation of this catalog.)
- The Professional Concentration is a strong program for graduate school preparation.

	MAJOR			Teaching	
	Trad. Track	Profess. Con.	Biochem. Con.	Certification	MINOR
Hours Required in Chemistry:	38	48	40	41	25
Hours Required in Other Departments:	20	20	31	66.5	0
Total Hours Required:	**58**	**68**	**71**	**107.5**	**25**

Summary of Requirements for Major/Minor in Chemistry

Major

1. Core Introductory Level Courses: *(8 hours)*
CHEM 101 General Chemistry I *(GEP Group C)*
CHEM 102 General Chemistry II

2. Core Advanced Courses: *(22 hours)*
CHEM 300 Computational Tech. in Chem
CHEM 301 Organic Chemistry I
CHEM 302 Organic Chemistry II
CHEM 320 Quantitative Anal. Chem.
CHEM 441 Physical Chem. Lecture I
CHEM 445 Physical Chemistry Lab I
CHEM 491 Seminar in Chemistry
CHEM 492 Capstone Experience

3. Required Courses in Other Departments:

Mathematics: *(8 hours)*
MATH 236 Calculus I *(Core Skill 3)*
MATH 237 Calculus II

Physics: *(8 hours)*
PHYS 215, 216 General Physics I, II *(215: GEP Group C)*
or PHYS 261, 262 Principles of Physics I, II *(261: GEP Group C)*

4. Choice of Specialization: *(12 - 61.5 hours)*
Majors must choose the Traditional Track, Professional Concentration, Biochemistry Concentration or Teaching Certification Option. Requirements listed below.

5. All majors must earn a C or better in CHEM 101, 102, 301, 302, 320.

Minor

1. Core Introductory Level Courses: *(8 hours)*
CHEM 101 General Chemistry I *(GEP Group C)*
CHEM 102 General Chemistry II

2. Core Advanced Courses: *(17 hours)*
CHEM 301 Organic Chemistry I
CHEM 302 Organic Chemistry II
and 7 additional hours in Chemistry, 300 level or above, except CHEM 491 Seminar in Chemistry, CHEM 492 Capstone Experience, CHEM 493 Advanced Chemical Research, CHEM 495 Internship in Chemistry, and CHEM 499 Special Problems in Chemistry

Requirements for the Traditional Track for Chemistry Majors

1. Core Courses: *(46 hours)*
Required of all Chemistry majors, listed above

2. Advanced Courses: *(8 hours)*
CHEM 421 Instrumental Analysis
CHEM 442 Physical Chemistry II
CHEM 446 Physical Chemistry Lab II

3. Required Courses in Mathematics: *(4 hours)*
MATH 238 Calculus III

4. All majors in this track must earn a C or better in CHEM 441.

Requirements for the Professional Concentration for Chemistry Majors

1. Core Courses: *(46 hours)*
Required of all Chemistry majors, listed above.

2. Additional Core Courses: *(12 hours)*
CHEM 411 Advanced Inorganic Chemistry
CHEM 421 Instrumental Analysis
CHEM 442 Physical Chemistry II
CHEM 446 Physical Chemistry Lab II

3. Advanced Courses *(6-7 hours)*
CHEM 455 Biochemistry I
CHEM 493 Advanced Chemistry Research *(1-3 hours)*
If less than three hours of CHEM 493 are taken, then one additional advanced course from among the following is required:
CHEM 438 Advanced Organic Chemistry
CHEM 457 Biochemistry II
CHEM 460 Environmental Chemistry
CHEM 490 Selected Topics in Chemistry

4. Required Courses in Other Departments
Mathematics: *(4 hours)*
MATH 238 Calculus III

5. All majors in this concentration must earn a C or better in CHEM 441.

Requirements for the Biochemistry Concentration for Chemistry Majors

1. Core Courses: *(46 hours)*
Required of all Chemistry majors, listed above.

2. Advanced Courses: *(7 hours)*
CHEM 455 Biochemistry I
CHEM 456 Biochemistry Lab
CHEM 457 Biochemistry II

3. Required Courses in Biology: *(15 hours)*
BIOL 149 General Biology I *(GEP Group C)*
BIOL 304 Microbiology
BIOL 350 Genetics
BIOL 435 Molecular Biology

4. Required Electives: *(3-4 hours)*
Select from among:
CHEM 411 Advanced Inorganic Chemistry
CHEM 420 Environmental Chemical Analysis
CHEM 421 Instrumental Analysis
CHEM 442 Physical Chemistry II
CHEM 493 Advanced Chemistry Research *(3 hours minimum)*
MATH 238 Calculus III

5. All majors in this concentration must earn a C or better in CHEM 455.

Requirements for the Teaching Certification Option in Chemistry

1. Core Courses: *(46 hours)*
Required of all Chemistry majors, listed above.

2. Advanced Courses: *(11 hours)*
CHEM 442 Physical Chemistry II
CHEM 446 Physical Chemistry Lab II
CHEM 455 Biochemistry I
CHEM 460 Environmental Chemistry
CHEM 493 Advanced Chemistry Research *(1 hour)*

3. Required Courses in Other Departments *(8 hours)*
MATH 238 Calculus III
BIOL 149 General Biology (*GEP Group C)*

4. Required Courses in Education *(42.5 hours)*
See Professional Education sequence for Secondary Programs in the Educational Professions section of this catalog.

Communication Studies

Major

Minor

	MAJOR	MINOR
Hours Required in Communication Studies:	21-33	21
Hours Required in Other Department:	6-18	3
Total Hours Required:	39	24

Professor:
Routhier (Chair)

Assistant Professors:
Kice, Ruminski

- Only courses in which you earn a grade of C or better may count towards satisfaction of major or minor requirements.
- All grades earned in courses completed for the major in Communication Studies count in determining whether you meet the graduation requirement of a 2.0 cumulative grade point average in the major.

Summary of Requirements for Major/Minor In Communication Studies

Major

1. Communication Studies Core Courses: *(18 hours)*

All of the following:

CMST 102/112 Intro. to Human Communication
CMST 300 Interpersonal Communication
CMST 302 Argumentation & Advocacy
CMST 312 Language Behavior & Communication
CMST 485 Issues & Responsibilities of Communication

and one from:

CMST 422 Seminar in Rhetorical Criticism
CMST 451 Seminar in Communication Theory

2. Communication Studies Tracks: *(12 hours)*

Select one of the following tracks:

a. Professional Communication

CMST 215 Small Group Communication
CMST 225 Interviewing
CMST 322 Presentational Communication
CMST 335 Organizational Communication

b. Interdisciplinary Track

Select an additional four courses to create a definable Communication Studies Track. *This option requires the collaboration and written approval of your faculty advisor.*

You may select courses in art and design, business administration, communication studies, computer science, English, mass communication, philosophy, political science, psychology, and sociology.

3. Practicum: *(3 hours)*

You are required to participate in a three-credit Practicum. This requirement may be met by completing three credits of CMST 494 Communication Studies Practicum, or by completing the graded academic portion of the internship course CMST 492 Internship Project. *(Capstone)*

4. Required Courses in Other Departments: *(6 hours)*

COSC 100 Introduction to Computer Science *(Tech. Fluency)*
MCOM 105 Intro. to Mass Communication

Minor

1. Communication Studies Core Courses: *(21 hours)*

All of the following:

CMST 102/112 Intro. to Human Communication
CMST 485 Issues & Responsibilities of Communication

and one from:

CMST 300 Interpersonal Communication
CMST 302 Argumentation and Advocacy
CMST 312 Language Behavior & Communication

and one from:

CMST 422 Seminar in Rhetorical Criticism
CMST 451 Seminar in Communication Theory

and three additional courses from:

CMST 215 Small Group Communication
CMST 225 Interviewing
CMST 300 Interpersonal Communication
CMST 302 Argumentation and Advocacy
CMST 312 Language Behavior & Communication
CMST 322 Presentational Communication
CMST 335 Organizational Communication
CMST 422 Seminar in Comm. Analysis
CMST 451 Seminar in Communication Theory

2. Required Courses in Other Departments: *(3 hours)*

MCOM 105 Intro. to Mass Communication

Computer Print Graphics

Certificate

	CERTIFICATE
Hours Required in Art:	**24**
Hours Required in Other Departments:	**0**
Total Hours Required:	**24**

Professors:
Brown, Davis, Dieruf, Rhodes (chair)

Associate Professor:
Hodges

Assistant Professor:
Herzfeld

- The certificate in Computer Print Graphics is offered by the Department of Visual Arts. The department also offers a B.F.A. in Art and Design and minors in art history, fine arts, and graphic design.
- You should consider this certificate if you are a degree-seeking student in another major who would like to acquire additional skills to enhance your professional marketability or a community member seeking professional education in the technology sector.
- Classes are scheduled so you can complete the certificate in four semesters.

The certificate in Computer Print Graphics is designed to assist you to:

- Understand the role a computer plays in a graphic designer's career
- Learn the basic functions of the Macintosh computer
- Gain fundamental knowledge of graphic applications like QuarkXpress, Adobe Illustrator, Adobe Photoshop
- Learn reproduction and manipulation of scanned images
- Create comprehensive layouts
- Develop a personal design style and vocabulary based on knowledge of past and contemporary design trends, materials, and commercial printing techniques.

Students may transfer a maximum of 12 credits into the program selected from ART 104, ART 105, ART 207, ART 212, and ART 412.

Summary of Requirements for Certificate in Computer Print Graphics

Certificate

1. Required Courses: *(24 hours)*

ART 104 Two-dimensional Design
ART 105 Three-dimensional Design
ART 207 Graphic Design
ART 212 Drawing
ART 307 Computer Graphics
ART 407 Advanced Graphic Design - Print (Level I)
ART 407 Advanced Graphic Design - Print (Level II)
ART 412 Advanced Drawing

College-level proficiency in English is required, as evidenced by a passing score on the English placement exam, completion of ENGL 101 or completion of its equivalent at another institution.

Computer Information Systems

Major

Minor

	MAJOR	MINOR
Hours Required in Computer Science:	47	13
Hours Required in Other Departments:	27-28	6
Total Hours Required:	74-75	19

See related programs

- COMPUTER SCIENCE
- INFORMATION TECHNOLOGY
- INFORMATION TECHNOLOGY
- MANAGEMENT

Professors:
Chitsaz, Rinard (Chair)

Associate Professor:
Thiel

Assistant Professors:
Crall, Song, Zhang, Zheng

Lecturer:
M. Flinn

Summary of Requirements for Major/Minor in Computer Information Systems

Major

1. Core Courses: *(26 hours)*

COSC 101 The Discipline of Computer Science
COSC 102 Foundations of Computer Science
COSC 240 Computer Science I
COSC 241 Computer Science II
COSC 325 Software Engineering
COSC 365 Digital Logic
COSC 460 Operating Systems Concepts
COSC 489 Computer Science Capstone

2. Required Advanced Courses: *(15 hours)*

COSC 300 Structured Systems Analysis and Design
COSC 331 Fundamentals of Computer Networks
COSC 380 Computer-Based Information Systems
COSC 440 Database Management Systems
COSC 480 Knowledge-Based Systems

3. Other Required Courses:

Mathematics *(6-7 hours)*

MATH 220 Calculus for Applications
or MATH 236 Calculus I *(Core Skill 3)*
MATH 209/219 Elements of Applied Probability and Statistics *(Core Skill 3)*
or MATH 380 Introduction to Probability and Statistics

Other: *(12 hours)*

ACCT 211 Financial Accounting
CMST 102 Introduction to Human Communication
ENGL 338 Technical Writing *(Core Skill 2)*
MGMT 351 Management of Organizations

4. Electives: *(6 hours)*

At least two courses selected from:

COSC 305 Computer Ethics
COSC 320 Business Programming
COSC 335 Network Architecture Design
COSC 345 The Internet and Multimedia Communications
COSC 350 Low-Level Programming Concepts
COSC 390 Topics in Modern Programming Languages
COSC 431 Secure Computing
COSC 491 Seminar in Computer Science
COSC 494 Field Exp. in Computer/Information Science
COSC 499 Individual Problems in Computer Science

5. Electives in Business: *(9 hours)*

Any three of the following courses

BLAW 291 Legal Environment of Business
MGMT 355 Operations Management
MGMT 356 Leadership and Human Behavior
MGMT 357 Human Resource Management
MKTG 361 Principles of Marketing

Minor

1. Core Courses *(10 hours)*

COSC 101 The Discipline of Computer Science
COSC 240 Computer Science I
ACCT 211 Financial Accounting

2. Advanced Courses: *(6 hours)*

Two of the following

COSC 300 Structured System Analysis and Design
COSC 305 Computer Ethics
COSC 380 Computer-Based Information Systems

3. Elective in Business: *(3 hours)*

One of the following

BLAW 291 Legal Environment of Business
MGMT 355 Operations Management
MGMT 356 Leadership and Human Behavior
MGMT 357 Human Resource Management
MKTG 361 Principles of Marketing

Computer Science

Major

Minor

Concentration in

- NETWORKS

Certificates in

- COMPUTING TECHNOLOGY
- SOFTWARE DEVELOPMENT
- PROGRAMMING
- NETWORKING

See related programs

- COMPUTER INFORMATION SYSTEMS
- INFORMATION TECHNOLOGY
- INFORMATION TECHNOLOGY MANAGEMENT

Professors:
Chitsaz, Rinard (Chair)

Associate Professor:
Thiel

Assistant Professor:
Crall, Song, Zhang, Zheng

Lecturer:
M. Flinn

- Computer science courses must have a grade of C or better to be applied towards major or minor requirements.
- You will be de-registered from any computer science course for which you have not earned a C or better in the prerequisite computer science course(s).
- You may receive credit by examination for the following courses: COSC 100, 240, 350.
- The Department of Computer Science also offers four certificates to students in other majors and community members. (See separate section).

	MAJOR	FOR NETWORKS CONCENTRATION	MINOR
Hours Required in Computer Science:	50	50	20
Hours Required in Other Departments:	32	32	0
Total Hours Required:	**82**	**82**	**20**

Mission Statement

The Computer Science Department's mission is to present our students with up-to-date curricula and pedagogy in the computer science and information systems disciplines, ensure that they have a solid foundation in the core concepts, equip them with problem solving and decision-making skills, and prepare them for lifelong learning in the discipline. The department provides for and encourages collegial, intellectual, and academic growth of its faculty. The department supports and encourages local and regional technology initiatives contributing to educational and economic advances.

Program Educational Objectives

The Frostburg Computer Science program will graduate computer science professionals who have:

- a solid foundation in core computer science concepts reinforced with mathematics and natural science
- an ability to apply modern computer science concepts and theories to contemporary, real world problems
- an understanding of professional responsibility to evaluate their ethical obligations to society, employers, employees and their peers
- an understanding of the commitment needed to pursue life long goals through educational and professional endeavors

Program Outcomes

The Frostburg Computer Science program will provide students with:

- an ability to apply knowledge of computing and mathematics appropriate to the discipline;
- an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
- an ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;
- an ability to function effectively on teams to accomplish a common goal;
- an understanding of professional, ethical, legal, security, and social issues and responsibilities;
- an ability to communicate effectively with a range of audiences;
- an ability to analyze the local and global impact of computing on individuals, organizations and society;
- a recognition of the need for, and an ability to engage in, continuing professional development;
- an ability to use current techniques, skills, and tools necessary for computing practices;
- an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;
- an ability to apply design and development principles in the construction of software systems of varying complexity.

Summary of Requirements for Major/Minor in Computer Science

Major

1. Core Courses: *(26 hours)*

COSC 101 The Discipline of Computer Science
COSC 102 Foundations of Computer Science
COSC 240 Computer Science I
COSC 241 Computer Science II
COSC 325 Software Engineering
COSC 365 Digital Logic
COSC 460 Operating Systems Concepts
COSC 489 Computer Science Capstone

2. Required Advanced Courses: *(18 hours)*

COSC 310 Data Structures & Algorithm Analysis
COSC 331 Fundamentals of Computer Networks
COSC 350 Low-Level Programming Concepts
COSC 450 Programming Language Principles & Paradigms
COSC 470 Compiler Design and Implementation
COSC 485 Introduction to the Theory of Computation

Minor

1. Core Courses: *(11 hours)*

COSC 101 The Discipline of Computer Science
COSC 240 Computer Science I
COSC 241 Computer Science II

2. Electives: *(9 hours)*

Three additional computer science courses.
Two must be at the 300-level or above.

Major *(continued)*

3. Other Required Courses:

Mathematics *(14 hours)*

MATH 236 Calculus I *(Core Skill 3)*
MATH 237 Calculus II
MATH 350 Linear Algebra I
or MATH 432 Differential Equations
or MATH 435 Numerical Analysis
or MATH 437 Combinatorics and Graph Theory
or MATH 470 Mathematical Models and Applications
MATH 380 Introduction to Probability & Statistics

Science *(12 hours):*

Select two courses from the following:
BIOL 149 General Biology I
CHEM 101 General Chemistry I
GEOG 103 Physical Geography
PHYS 261 Principles of Physics I: Mechanics
AND select one course from the following:
BIOL 150 General Biology II
CHEM 102 General Chemistry II
PHYS 262 Principles of Physics II: Electricity and Magnetism

Other *(6 hours)*

CMST 102 Introduction to Human Communication
ENGL 338 Technical Writing *(Core Skill 2)*

4. Electives: *(6 hours)*

A minimum of 6 hours in at least two courses
COSC 305 Computer Ethics
COSC 335 Network Architecture Design
COSC 345 The Internet and Multimedia Communications
COSC 390 Topics in Modern Programming Languages
COSC 415 Computer Interfacing
COSC 420 Robotics and Industrial Computer Applications
COSC 431 Secure Computing
COSC 435 Network Implementation and Testing
COSC 440 Database Management Systems
COSC 444 Introduction to Distributed Programming
COSC 445 Network and Distributed System Management
COSC 455 Artificial Intelligence
COSC 465 Computer Systems Architecture
COSC 475 Interactive Computer Graphics
COSC 491 Seminar in Computer Science
COSC 494 Field Exp. in Computer/Information Science
COSC 499 Individual Problems in Computer Science

Minor

Requirements for Major Concentrating in Networks

1. Core Courses: *(26 hours)*

COSC 101 The Discipline of Computer Science
COSC 102 Foundations of Computer Science
COSC 240 Computer Science I
COSC 241 Computer Science II
COSC 325 Software Engineering
COSC 365 Digital Logic
COSC 460 Operating Systems Concepts
COSC 489 Computer Science Capstone

2. Required Advanced Courses: *(15 hours)*

COSC 331 Fundamentals of Computer Networks
COSC 335 Network Architecture Design
COSC 345 The Internet and Multimedia Communications
COSC 431 Secure Computing
COSC 435 Network Implementation and Testing

3. Other Required Courses:

Mathematics *(14 hours)*

MATH 236 Calculus I *(Core Skill 3)*
MATH 237 Calculus II
MATH 350 Linear Algebra I
or MATH 432 Differential Equations
or MATH 435 Numerical Analysis
or MATH 437 Combinatorics and Graph Theory
or MATH 470 Mathematical Models and Applications
MATH 380 Introduction to Probability and Statistics
or MATH 209/219 Elements of Applied Probability & Statistics *(Core Skill 3)*

Science: *(12 hours):*

Select two courses from the following:

BIOL 149 General Biology I
CHEM 101 General Chemistry I
GEOG 103 Physical Geography
PHYS 261 Principles of Physics I: Mechanics

And select one course from the following:

BIOL 150 General Biology II
CHEM 102 General Chemistry II
PHYS 262 Principles of Physics II: Electricity and Magnetism

Other: *(6 hours)*

CMST 102 Introduction to Human Communication
ENGL 338 Technical Writing *(Core Skill 2)*

4. Electives: *(9 hours)*

A minimum of 9 hours in at least three courses:

COSC 305 Computer Ethics
COSC 310 Data Structures and Algorithm Analysis
COSC 350 Low-Level Programming Concepts
COSC 390 Topics in Modern Programming Languages
COSC 444 Introduction to Distributed Programming
COSC 445 Network and Distributed System Management
COSC 450 Programming Language Principles & Paradigms
COSC 455 Artificial Intelligence
COSC 465 Computer Systems Architecture
COSC 485 Introduction to the Theory of Computation
COSC 491 Seminar in Computer Science
COSC 494 Field Exp. in Computer/Information Science
COSC 499 Individual Problems in Computer Science

Certificates in

- COMPUTING TECHNOLOGY
- SOFTWARE DEVELOPMENT
- PROGRAMMING
- NETWORKING

The four **computer science certificates** offer learning opportunities to a range of students, from computing novices to computing professionals.

Interested students might include:

- Degree-seeking undergraduates in any major who wish to develop computing skills beyond those required in their degree program. The certificate represents a credential that may enhance career opportunities in any field.
- Non-degree-seeking students who wish to develop computing and technical skills to increase opportunities for employment.
- Bachelor'sdegree holders and professionals in the field looking for career enhancement or change.
- If you are completing the networks concentration in the computer science major you cannot earn the networking certificate.

Computing Technology *(12 hours)*

COSC 100/110 Introduction to Computer Science *(You may test out of COSC 100/110) (Tech. Fluency)*
COSC 120 Introduction to Cyberspace
COSC 130 Introduction to Programming
COSC 220 Introduction to Software Applications

- A course of study for a learner with little or no computing experience looking to develop a solid skill set in computing basics.

Software Development *(14 hours)*

COSC 101 The Discipline of Computer Science
COSC 240 Computer Science I
COSC 241 Computer Science II
COSC 325 Software Engineering

- A study of programming fundamentals and software development methods for a student with basic computing skills.

Programming *(14 hours)*

COSC 101 The Discipline of Computer Science
COSC 240 Computer Science I
COSC 241 Computer Science II

And one of the following:

COSC 310 Data Structures & Algorithm Analysis
COSC 390 Topics in Modern Programming Languages

- A study sequence for students with basic computing skills that provides a foundation in computer programming fundamentals and working expertise in an object-oriented programming language.

Networking *(17 hours)*

COSC 241 Computer Science II *(COSC 240 is prerequisite for COSC 241. Students may test out of COSC 240)*
COSC 335 Network Architecture and Design
COSC 365 Digital Logic
COSC 435 Network Implementation and Testing
COSC 445 Network and Distributed System Management

- A study sequence for students with programming experience wishing to develop expertise in network theory, design, and application. Permission of department chair required.

Criminal Justice

Collaborative Program

Major

	MAJOR
Hours Required at the community college partner:	62-70
Hours Required at Frostburg State University:	50-58
Total Hours Required:	**120**

Coordinator:
David Lewis, Professor,
Department of Political Science

Coordinating Committee:
Professors:
Lewis (Political Science)
Associate Professors:
Johnson (Political Science),
McMullen (Sociology)

- If you do not have a criminal justice degree from a community college, you are not eligible for this major. Students who do not hold an AAS in criminal justice should see the Law and Society major with concentrations in criminal justice and legal studies for additional paths to careers in law and law enforcement.
- If you complete the major in criminal justice, you will earn the Bachelor of Technical and Professional Studies (BTPS) degree.
- Since criminal justice is an interdisciplinary program, grades in all program courses completed at FSU count in the major grade point average.
- Nine credits of internship and seminar are required.

The Bachelor of Technical and Professional Studies degree in criminal justice is a collaborative program between Frostburg State University and Allegany College of Maryland, Hagerstown Community College and Frederick Community College. The program is designed to provide advanced career opportunities for students who hold an Associate of Applied Science degree in criminal justice from ACM, HCC or FCC, or an A.A. degree in criminal justice from FCC. If you hold a similar degree from another program, you may be considered for admission based on an articulation agreement between FSU and the other undergraduate institution.

Students who do not hold an AAS in criminal justice should see the Law and Society major with concentrations in criminal justice and legal studies.

The program is designed to prepare students for advancement in careers in law enforcement, corrections, and probation and parole. Building on the technical skills gained in the associate degree program, and on experience in the field, the baccalaureate program will enhance your understanding of societal issues, political processes, and administrative structures that impact the criminal justice system, and provide opportunities to hone your research and management skills.

Summary of Requirements for a Major in Criminal Justice

1. An Associate of Applied Science in Criminal Justice degree from Allegany College of Maryland, or an Associate of Applied Science in Administration of Justice from Hagerstown Community College or an Associate's or Associate of Applied Science degree in Criminal Justice from Frederick Community College. A maximum of 70 credits will transfer from all community colleges you have attended.

2. General Education Requirements:
You must complete a minimum of 40 credits in general education as part of the baccalaureate program, including an advanced writing course that must be completed at FSU.

3. Program Core Courses at:

A. Allegany College of Maryland *(39 hours)*

Criminal Justice 101 Introduction to Criminal Justice
Criminal Justice 102 Police Administration & Organization
Criminal Justice 103 Criminal Law
Criminal Justice 104 Criminal Evidence and Procedure
Criminal Justice 105 Criminal Investigation
Criminal Justice 106 Introduction to Corrections
Criminal Justice 108 American Courts and Legal System
Criminal Justice 201 Criminalistics
Political Science 101 American National Government
Political Science/Criminal Justice 205 American Constitutional Law
Psychology 101 General Psychology
Psychology 202 Human Adjustment
or Psychology 205 Abnormal Psychology
Sociology 101 Introduction to Sociology

B. Hagerstown Community College *(27 hours)*

ADJ 101 Intro to Criminal Justice
ADJ 201 Law Enforcement/Community
ADJ 204 Criminal Investigation
ADJ 208 Police Management
ADJ 209 Corrections Management
POL 101 American Government
POL 202 Constitutional Law
PSY 201 General Psychology
SOC 103 Criminology

C. Frederick Community College *(27 hours)*

CJ 101 Intro to Criminal Justice
CJ 110 Criminal Law
CJ 204 Police Operational Services
CJ 214 The Correctional Process
CJ 220 Criminal Evidence and Procedure
CM or CMSP 103 Speech Fundamentals
PI 104 American Government National
PS 101 Intro to Psychology
SO 201 Criminology

4. Courses at Frostburg State University:

A. Program Core Courses: *(34 hours)*

POSC 250 Research Methods
or SOCI 311 Basic Research Methods
POSC 321 State and Local Politics
POSC 323 Public Administration
POSC 423 American Constitutional Law II
POSC 489 Law & Society Capstone *(1 credit)*
POSC 492 Internship Seminar *(3 credits)*
POSC 495 Internship in Political Science *(6 credits)*
SOCI 200 Social Problems *or* SOCI 203 Deviant Behavior
SOCI 305 Racial and Cultural Minorities *(GEP Group F)*
SOCI 340 Criminology
SOCI 442 Juvenile Delinquency

B. Program Elective Courses: *(6 hours)*

Select from:
MGMT 351 Management of Organizations
MGMT 356 Leadership and Interpersonal Skills*
MGMT 357 Human Resources Management*
PSYC 386 Drugs and Human Behavior
PHIL 304 Social Philosophy
PHIL 410 Philosophy of Law

**Requires MGMT 351 as prerequisite*

Cultural Anthropology

Minor

	MINOR
Hours Required in Sociology:	9-12
Hours Required in other Departments:	6-9
Total Hours Required:	**18**

Coordinator:
Kara Rogers-Thomas,
Assistant Professor,
Department of Sociology

- You cannot major in Cultural Anthropology.

Summary of Requirements for Minor in Cultural Anthropology

Minor

1. Basic Courses: *(9 hours)*

SOCI 100/111 Intro to Sociology *(GEP Group D)*
SOCI 224 Cultural Anthropology *(GEP Group F)*
SOCI 362 Sociology of Religion

2. Distribution of Electives: *(9 hours)*

At least 6 of which must be in two different disciplines other than Sociology.

AAST 300/HIST 301 Traditional Africa
AAST 400 Africans of the Diaspora
ART 302 Artistic Traditions: Africa and the Americas
BIOL 128 Introduction to Ethnobotany
BIOL 484 Field Experiences in Ethnobotany and Ecology
ENGL 280 Mythology and Literature
GEOG 104/114 Human Geography *(GEP Group D or F)*
GEOG 110 World Regional Geography *(GEP Group D or F)*
GEOG 320 Geography of Latin America
or GEOG 403 The Geography of Sub-Sahara Africa
HIST 318 Native Peoples of the Americas *(GEP Group F)*
INST 100 Intro. to International Studies *(GEP Group F)*
INST 150 Introduction to World Religions *(GEP Group F)*
MUSC 117 Music of Africa, Asia, & the Americas *(GEP Group F)*
SOCI 350 Folklore in Appalachia
SOCI 334 Gender and Social Life
SOCI 306 The Sociology of African Americans

Dance

Minor

	MINOR
Hours Required at the Dance:	23
Hours Required at Frostburg State University:	2-3
Total Hours Required:	**25-26**

Coordinator:
See Chair, Department of Theatre and Dance

- You are required to participate in either the annual Fall or Spring Dance Concert
- You may not receive credit for both a DANC course and the same course formerly labeled PHEC.
- You cannot major in Dance.

Summary of Requirements for Minor in Dance

Minor

1. Courses in Dance Technique: *(13 hours)*
DANC 131 Ballet I
DANC 142 Modern I
DANC 154 Jazz I
DANC 231 Ballet II
DANC 242 Modern II
DANC 254 Jazz II
DANC 342 Modern III

2. Courses in Dance Composition and Theory:
(10 hours)
DANC 110 Dance Appreciation *(GEP Group A)*
DANC 408 Choreography & Production
DANC 429 Special Topics in Dance *(4 credits required)*

3. Required Courses in Other Departments:
(2-3 hours from among)
ART 104 Two-Dimensional Design
MUSC 101 Music Fundamentals
THEA 104 Theatre
THEA 107 Intro. to Theatrical Vision *(GEP Group A)*

Dental Hygiene Preparation

Pre-professional program

	PRE-PROFESSIONAL PROGRAM
Total Hours:	**65**

Coordinator:
William Seddon, Professor and Chair, Department of Biology

- The listed pre-professional courses are required for students interested in attending the University of Maryland, Baltimore's Dental Hygiene Program. These courses could also be taken, together with additional requirements, by students interested in attending other programs in Dental Hygiene.
- It is expected that each student enrolled in the Pre-Dental Hygiene Program will earn and maintain ***a minimum 3.0*** cumulative grade point average and a 3.0 cumulative grade point average in biology, chemistry, and nutrition to be considered competitive for the program.
- You cannot major or minor in Dental Hygiene Preparation.

Summary of Requirements for Pre-professional Program in Dental Hygiene Preparation

1. Biology *(16 hours)*
BIOL 149 General Biology I
BIOL 201 Anatomy & Physiology I
BIOL 202 Anatomy & Physiology II
BIOL 304 Microbiology

2. Chemistry *(13 hours)*
CHEM 101 General Chemistry I
CHEM 102 General Chemistry II
CHEM 301 Organic Chemistry I

3. English *(9 hours)*
ENGL 101/111 Freshman Composition
ENGL 310/312 Advanced Composition
ENGL 338 Technical Writing

4. Communication Studies *(3 hours)*
CMST 102 Intro. to Human Communication

5. Sociology *(3 hours)*
SOCI 100/111 Intro. to Sociology

6. Math *(3 hours)*
MATH 209/219 Elements of Applied Probability & Statistics

7. Health *(3 hours)*
HEED 200 Nutrition

8. Psychology *(3 hours)*
PSYC 150/151 General Psychology

9. Humanities *(6 hours)*
Courses must be selected from two different areas: English (literature), philosophy, mathematics, foreign language, history, and music/art (appreciation or history)
Some suggested courses:
MATH 102, 103
PHIL 102, 313
MUSC 110, 117
ENGL 150/250, 260, 261, 290

10. Social Science *(6 hours)*
Courses may be selected from the following areas: psychology, sociology, economics, business administration, geography, political science, and computer science.

Earth Science

Major

Concentration in

- ENVIRONMENTAL SCIENCE

Teaching Certification Option

Contact:
Craig Caupp, Chair,
Department of Geography

Participating Faculty:

Professors:
Yoder (Biology),
Caupp, Precht (Geography)

Associate Professors:
Doyle (Physics),
Kessler (Geography),
Pegg (Biology)

Assistant Professors:
Allen, D. Arnold, M. Ramspott
(Geography)

- This is a multidisciplinary program jointly administered by the Departments of Geography, Physics, Biology and Chemistry.
- An optional internship is available in Earth Science.
- You may pursue Earth Science middle/secondary teacher certification. Contact the Chair of the Educational Professions Department.
- There is no minor in Earth Science.

	MAJOR	FOR ENVIRONMENTAL SCIENCE CONCENTRATION	TEACHING CERT. OPTION
Hours Required in Geography:	28	37	30
Hours Required in Other Fields:	17	34	59.5
Total Hours Required:	**45**	**71**	**89.5**

Summary of Requirements for Major in Earth Science

1. Introductory Level Courses: *(7 hours)*

GEOG 103 *or* 113 Physical Geography *(GEP Group C)*
GEOG 275 Fundamentals of Geographic Data Handling *(Tech. Fluency)*

2. Required Advanced Courses: *(26-27 hours)*

GEOG 207 Physical Geology
GEOG 208 Historical Geology
GEOG 310 Fundamentals of Cartography
GEOG 335 (or SCIE 335) Oceanography
or GEOG 340 Soil: Genesis, Nature and Characterization*
GEOG 380 Research Methods in Geography
GEOG 430 Surface Water Hydrology
or GEOG 431 Quaternary Environments*
GEOG 486 Earth Science Capstone
MATH 209 Elements of Applied Probability and Statistics *(Core Skill 3)*
GEOG 205/PHSC 205 Descriptive Meteorology or GEOG 405 Global Climate System*

3. Required Supporting Science Sequence: *(8 hours)*

Complete one of the supporting Science Sequences:
BIOL 149-150 General Biology *(BIOL 149 - GEP Group C)*
CHEM 101-102 General Chemistry *(CHEM 101 - GEP Group C)*
PHYS 215-216 General Physics I and II *(PHYS 215 - GEP Group C)*
PHYS 261-262 Principles of Physics I and II *(PHYS 261 - GEP Group C)*

4. Elective: *(3-6 hours)*

*Select at least one of the following courses (two for teaching certification)***
BIOL 305 Dendrology
BIOL 314 Plant Taxonomy
BIOL 340 Ecology
BIOL 411 Invertebrate Zoology
BIOL 426 Vertebrate Zoology
GEOG 406 Management and Conservation of Natural Resources
GEOG 413 Remote Sensing—Image Interpretation
GEOG 432 Groundwater Hydrology
GEOG 441 Soil Analysis
GEOG 445 Biogeography
GEOG 460 Natural Hazards in the Physical Environment
PHSC 210 Descriptive Astronomy
PHSC 220 The Solar System

**Courses not selected to meet requirements, may be used as electives.*
***Some of these courses may require additional prerequisite course work.*

Summary of Requirements for Teaching Certification Option in Earth Science

If you wish to complete a Maryland State approved program in teaching Earth Science, you must:

- Complete the BA/BS in Earth Science (without a concentration).
- Meet the phase admissions requirements summarized in the Educational Professions section.
- Complete the professional education sequence described in Education: Secondary School Programs.
- Select the following courses to complete your major: GEOG 205/PHSC 205, PHSC 210 or PHSC 220, GEOG/SCIE 335, and GEOG 406 or GEOG 460.

- The Environmental Science concentration is dedicated to the study of the relationships between humans and their environments.
- You will become sensitive, articulate, and knowledgeable about increasingly complex environmental issues facing contemporary society.
- Course work in this concentration will provide the theoretical and practical background as well as the skills necessary to study environmental science from a wide range of perspectives.
- You must meet certain criteria and deadlines prior to enrollment in either GEOG 488 or GEOG 492.
- You must select 2 other members for your advisory committee in addition to your advisor from the faculty in participating departments. At least 1 member of the committee must be from Geography.

Summary of Requirements for Environmental Science Concentration in Earth Science

1. Introductory Level Courses: *(16 hours)*

GEOG 103/113 Physical Geography *(GEP Group C)*
GEOG 104/114 Human Geography *(GEP Group D or F)*
or GEOG 110 World Regional Geography: Cultural Diversity (*GEP Group D or F)*
GEOG 275 Fundamentals of Geographic Data Handling *(Tech. Fluency)*
MATH 102 College Algebra (*Core Skill 3)*
MATH 209 Elements of Probability and Statistics *(Core Skill 3)*

2. Required Advanced Courses: *(15 hours)*

GEOG 380 Research Methods in Geography
GEOG 406 Management and Conservation of Natural Resources
GEOG 445 Biogeography
GEOG 472 Environmental Planning *or* GEOG 473 Environmental Law
GEOG 486 Earth Science Capstone
GEOG 488 Environmental Practicum *or* GEOG 492 Internship: Research in Geography*
**requires co-registration in GEOG 495*

3. Required Supporting Science Sequence: *(16 hours)*

BIOL 149 General Biology I *(GEP Group C)*
BIOL 150 General Biology II
CHEM 101 General Chemistry I *(GEP Group C)*
CHEM 102 General Chemistry II

4. Electives: *(24-25 hours)*

*Select two courses in each group:***

Group I Advanced Biology

BIOL 314 Plant Taxonomy *or* BIOL 305 Dendrology
BIOL 340 General Ecology
BIOL 406 Ornithology
BIOL 421 Sample Design and Analysis of Plant Communities
BIOL 422 Herpetology
BIOL 423 Mammalogy
BIOL 430 Introductory Limnology

Group II Advanced Techniques

GEOG 310 Fundamentals of Cartography
GEOG 317 Principles of Geographic Information Science
GEOG 413 Remote Sensing - Image Interpretation
GEOG 414 Digital Image Processing and Analysis
GEOG 433 Surveying and Field Techniques

GROUP III Advanced Physical Geography

GEOG 335 Oceanography
GEOG 340 Soil: Genesis, Nature and Characterization
GEOG 405 Global Climate System
GEOG 430 Surface Water Hydrology
GEOG 431 Quaternary Environments
GEOG 432 Groundwater Hydrology
GEOG 460 Natural Hazards in the Physical Environment

GROUP IV Advanced Human Systems

Take two of the following from two different disciplines:
ECON 410 Resource and Environmental Economics
ENGL 440 Literature of the Environment
GEOG 300 Economic Geography
GEOG 407 Political Geography
GEOG 410 Locational Analysis
HIST 309 World Environmental History
PHIL 315 Philosophy and the Environment
POSC 450 Environmental Public Policy

***some of these courses may require additional prerequisite course work.*

Engineering

Major

CONCENTRATIONS	ELECTRICAL	INDUST. CHEM.	MATERIALS	MANAGEMENT
Hours Required in Engineering	37	20	38	20
Hours Required in Other Departments	52-55	70-72	51-54	70
Total Hours Required:	**89-92**	**90-92**	**89-92**	**90**

Professors:
J. Hoffman, G. Latta, Plitnik

Associate Professors:
Deng-Luzader, O. Soysal, Wang

Assistant Professors:
Eltayeb (Chair), E. Moore, Teker

Mission Statement

The mission of the FSU Engineering Program is to provide excellent undergraduate education in engineering; to establish close partnership with and provide technical knowledge to industry, government, and local business; to contribute to economic development within the state of Maryland, specifically in the Western Maryland region; and to provide related services to the campus community and community at large.

Program Educational Objectives

Within the first few years following graduation, alumni of the Engineering BS program will demonstrate:

- **Broad knowledge** of mathematics, physical science, and engineering science with emphasis in selected concentration areas of engineering to be successful in government, industry, private companies, and interdisciplinary graduate programs;
- **Professional skills** to function in multidisciplinary teams, use modern instruments, computers, and engineering software to solve engineering problems, perform research and participate in design projects;
- **An understanding of professional responsibility** to evaluate their ethical obligations to society, employers, employees, and peers;
- **Motivation for life-long learning** to update their technical knowledge and understanding of societal and contemporary issues.

Program Outcomes

Students will acquire the knowledge and skills needed to demonstrate the learning outcomes assessed throughout the curriculum. When students graduate, they will be able to

a. Apply knowledge of mathematics, science, and engineering;

b. Design and conduct experiments, as well as analyze and interpret data;

c. Design a system, component, or process to meet desired needs;

d. Function on multi-disciplinary teams;

e. Identify, formulate, and solve engineering problems;

f. Demonstrate an understanding of professional and ethical responsibility;

g. Communicate effectively;

h. Demonstrate the broad education necessary to understand the impact of engineering solutions in a global and societal context;

i. Recognize the need for, and engage in, life-long learning;

j. Demonstrate a knowledge of contemporary issues in engineering;

k. Use the techniques, skills, and modern engineering tools necessary for engineering practice.

Summary of Requirements for Major in Engineering

Major

1. Core Courses *(63 hours)*

ENES	100	Introduction to Engineering Design
MATH	236	Calculus I *(Core Skill 3)*
MATH	237	Calculus II
MATH	238	Calculus III
MATH	432	Differential Equations
CHEM	101	General Chemistry I *(GEP Group C)*
CHEM	102	General Chemistry II (or CHEM 133)
PHYS	261	Principles of Physics I - Mechanics *(GEP Group C)*
PHYS	262	Principles of Physics II - E&M
PHYS	263	Principles of Physics III - Acoustics and Optics
PHYS	264	Principles of Physics IV - Thermo. and Mod. Phys.
PHYS	320	Experimental Physics
ENEE	204	Basic Circuit Theory
ENEE	206	Fund. Digital and Electric Circuits Lab
ENEE	241	Numerical Methods in Engineering
ENME	350	Electronics and Instrumentation I
ENME	351	Electronics and Instrumentation II
PHYS	491	Seminar
ENEE	408	Capstone Design Project

2. Area of Concentration *(26-29 hours)*
Majors must choose to concentrate in one of the following areas:

Electrical Engineering *(26-29 hours)*

PHYS 312 Electricity and Magnetism
ENEE 114 Programming Concepts for Engineers
ENEE 244 Digital Logic Design
ENEE 307 Electronic Circuits Lab
ENEE 350 Computer Organization
ENEE 461 Control Systems Lab
ENEE 475 Power Electronics
*Two electives from the approved list**

Industrial Chemistry *(27-29 hours)*

CHEM 301 Organic Chemistry I
CHEM 302 Organic Chemistry II
CHEM 320 Quantitative Analytical Chemistry
CHEM 421 Instrumental Analysis
CHEM 441 Physical Chemistry
CHEM 445 Physical Chemistry Lab
*Two electives from the approved list**

Materials Engineering *(26-29 hours)*

ENES 102 Statics
ENES 220 Mechanics of Materials
ENES 221 Dynamics
PHYS 311 Thermodynamics
ENME 331 Fluid Mechanics
ENME 332 Transfer Processes
ENME 382 Engineering Materials and Manufacturing
*Two electives from the approved list **

Engineering Management *(27 hours)*

ACCT 211 Financial Accounting
ACCT 212 Managerial Accounting
ACCT 315 Cost Accounting
ECON 200 Basic Economics *OR* ECON 201 Principles of Economics (Macro) *(GEP Group D)*
MGMT 315 New Business Ventures *OR* MGMT 359 Quality Management
MGMT 351 Management of Organizations
MGMT 355 Operations Management
MGMT 356 Leadership and Human Behavior
MKTG 361 Principles of Marketing *OR* BLAW 291 Legal Environment of Business

***Approved Electives**
Any 300 or 400 level course from other engineering concentrations
Any 300 or 400 level PHYS, CHEM, ENEE, ENME, MKTG or MGMT coded course

Engineering

Dual-degree Program

	PRE-PROFESSIONAL PROGRAM
Total Hours Required at Frostburg State University:	**72-82**

Coordinator:
Mohammed Eltayeb, Chair, Department of Physics and Engineering

- A dual degree program of Frostburg State University and the University of Maryland, College Park's College of Engineering is available to the student who seeks a career in one of several engineering fields and who also wants a general undergraduate education.
- This program allows you to earn undergraduate degrees from both institutions over a five-year period.
- In this program you attend FSU for approximately three academic years and the University of Maryland, College Park's College of Engineering for approximately two academic years. After completing the academic requirements of FSU — usually at the end of the fourth year (the first year at the University of Maryland, College Park) — you will receive a bachelor's degree from Frostburg State University. Upon meeting all requirements in the Clark School of Engineering, you earn one of several baccalaureate engineering degrees from the University of Maryland, College Park, majoring in any of the following areas:

-Aerospace Engineering
-Biological Resources Engineering
-Chemical Engineering
-Civil Engineering
-Computer Engineering
-Electrical Engineering
-Engineering Materials
-Fire Protection
-Materials Engineering
-Mechanical Engineering
-Nuclear Engineering

Summary of Requirements at FSU for Dual Degree in Engineering

1. Chemistry: *(8-18 hours)*
CHEM 101 & 102 General Chemistry I & II *(CHEM 101 - GEP Group C)*
*CHEM 301 & 302 Organic Chemistry I & II
**Organic chemistry courses required for students in chemical engineering.*

2. Computer Science: *(4 hours)*
COSC 240 Computer Science I
or ENEE 114 Programming Concepts for Engineers

3. Mathematics: *(18 hours)*
MATH 236, 237, 238 Calculus I, II & III *(MATH 236 - Core Skill 3)*
MATH 420 Advanced Calculus, or MATH 436 Mathematical Physics
MATH 432 Differential Equations

4. Engineering: *(3 hours)*
ENES 100 Intro to Engineering Design

5. Physics: *(39 hours)*
PHYS 261 Principles of Physics I *(GEP Group C)*
PHYS 262 Principles of Physics II
PHYS 263 Principles of Physics III
PHYS 264 Principles of Physics IV
PHYS 310 Classical Mechanics
PHYS 312 Electricity & Magnetism
PHYS 320 Experimental Physics
PHYS 491 Seminar
PHYS 492 Senior Research & Seminar *(Capstone)*

Choose one track: (9 hours)

a. Traditional Physics
PHYS 311 Thermodynamics
PHYS 417 Quantum Physics
plus one 300-400 level physics elective

b. Engineering Physics
With permission of the Department Chair, as many as 6 credits of mechanical or electrical engineering courses at the 200 level or above may be applied.

Courses listed in the study program not to be applied toward the student's major field of study may be applied toward satisfaction of the General Education Program requirements where appropriate.

Dual Degree Requirements at FSU

1. Completion of required courses in the dual degree study program (listed above), 72-82 semester hours depending on field of engineering.
2. Completion of a minimum of 90 semester hours.
3. Completion of FSU's Core Skill Requirements and Modes of Inquiry in the General Education Program (a waiver of Group E courses, requiring a total of at least 26 credit hours in Modes of Inquiry). Students must complete at least six of the additional nine credits of General Education course work required by the University of Maryland, College Park (Advance Studies CORE requirement) to satisfy the General Education requirements at Frostburg State University.
4. Completion of a major program as approved by the respective Frostburg State Department Chair.
5. Recommendation from the designated official at Frostburg State University (Coordinator of the Dual Degree Program in Engineering).

Requirements for Admission to University of Maryland, College Park

To become a Dual Degree candidate at the University of Maryland, College Park, a student must have satisfied all specified requirements at Frostburg State University. Additionally, the student must have the following:

1. A minimum cumulative 3.0 grade point average at Frostburg;
2. Recommendation from the designated official at Frostburg (Coordinator of the Dual Degree Program in Engineering).

Admission to the College of Engineering of the University of Maryland, College Park is guaranteed to the Frostburg State University Dual Degree student provided the above stated requirements have been satisfied.

Mechanical Engineering

Collaborative Program

Major

	MAJOR
Hours Required in Engineering:	66
Hours Required in Other Departments:	40
Total Hours Required:	**106**

Coordinator:
Julie Yi-Zun Wang,
Associate Professor, Department of Physics and Engineering

- A collaborative program between Frostburg State University and the University of Maryland, College Park, which allows students to remain on the Frostburg campus for four years while receiving a B.S. degree in mechanical engineering from UM,CP.
- This program is accredited by the Accreditation Board for Engineering and Technology (ABET).
- The degree awarded to students completing the program is a B.S. from UM,CP. Therefore, students enrolled in the collaborative program must complete UM,CP's general education program requirements.
- During the freshman and sophomore years, you will be enrolled as a pre-engineering major. You will complete general education and engineering science courses taught by faculty on-site at FSU. FSU tuition rates will apply.
- After completing 45 credits of designated course work, you must apply for admission to College Park's Clark School of Engineering. After meeting UM,CP's admissions standards, you will be accepted into the second half of the program as an engineering major. UM,CP's tuition rates will apply for this part of the program. You must reapply for financial aid and scholarships through UM,CP.
- Upper level engineering courses will be delivered over interactive video from College Park to FSU. All laboratory and design courses will be taught by FSU faculty.
- UM,CP requires completion of one Human Cultural Diversity course, focusing on one or more of the following: a) the history, status, treatment, or accomplishment of women or minority groups and subcultures; b) non-Western culture; c) concepts and implications of

Mission Statement

The mission of the FSU Collaborative Mechanical Engineering Program is to provide excellent undergraduate education in mechanical engineering; to establish close partnership with and provide technical knowledge to industry, government, and local business; to contribute to economic development within the state of Maryland, specifically in the Western Maryland region; and to provide related services to the campus community and community at large.

Program Educational Objectives

The Frostburg Collaborative Mechanical Engineering Program will graduate engineers who have

1. Broad knowledge of mathematics, physical science, and engineering science with emphasis in selected specialization areas of mechanical engineering to be successful in government, industry, private companies, and graduate schools.
2. Professional skills to function in multidisciplinary teams, use modern engineering tools and computer software, solve engineering problems, engage in design work or research, and communicate with professionals.
3. An understanding of professional responsibility to evaluate their ethical obligations to society, employers, employees, and their peers.
4. Motivation for life-long learning to update their technical knowledge and understanding of societal and contemporary issues.

Program Outcomes

The students of the Mechanical Engineering Collaborative Program will demonstrate throughout the curriculum

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs
d. an ability to function on multi-disciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of mechanical engineering solutions in a global and societal context
i. a recognition of the need for and an ability to engage in life-long learning
j. a knowledge of contemporary issues in mechanical engineering
k. an ability to use the techniques, skills, and modern engineering tools necessary for mechanical engineering practice

Summary of UMCP's General Education Program Requirements

Minimum of 43 credit hours required

Fundamental Studies Requirements

1. English *(6 hours)*

ENGL 101/111 Freshman Composition-*must be attempted within first 30 credits & passed within first 60*
ENGL 338 Technical Writing *or* ENGL 339 Scientific Writing - *must be taken after you have completed 56 credits/junior standing*

2. Mathematics *(3-4 hours)*

Any MATH 100 or 200 level course except MATH 206, MATH 207, MATH 103 and MATH 104.
Must be attempted by 30 credits, completed by 60-credit level.
MATH 236 Calculus I, *required under the engineering major, fulfills this requirement.*

Distributive Studies Requirements

1. Arts and Humanities *(9 hours)*

ENGL 150/250 Introduction to Literature
and one History/Theory of the Arts course from the following:
ART 100/111 Art Appreciation or ART 110 Visual Imagery
MUSIC 110 Intro. to World Music *or* MUSC 117 Music of Africa, Asia and the Americas
THEA 106 Intro. to Theatre
DANC 110 Dance Appreciation

One additional Arts and Humanities course from the above History/Theory of the Arts list or any philosophy course.

diversity. If you complete either MUSC 110, MUSC 117 or DANC 110 under Distributive Studies, these courses would also fulfill your diversity requirement. In addition, there are a number of 300-400 level courses that can be taken to fulfill both the Advanced Studies and Diversity requirement. Please consult with your advisor for a listing of approved courses.

- To be granted advanced placement credit for a course, you must meet UM,CP's minimum requirements. These differ from FSU's standards, with a higher score required by UM,CP in a number of areas. Please consult the Engineering Coordinator to verify AP scores required to receive credit.
- Advanced Studies courses should be taken only after completing 56 credits/entering junior standing.
- Admission to the collaborative program in Electrical Engineering has been discontinued. FSU's own engineering program with a concentration in electrical engineering replaces it.

2. Mathematics and Natural Sciences *(10 hours)*

The mathematics and sciences requirements are fulfilled by courses completed for the engineering program.

3. Social Sciences *(9 hours)*

HIST 100/111 The Contemporary World in Historical Perspective
and two behavioral and social science courses from the following:
POSC 110/112 Introduction to American Politics
POSC 113/114 Introduction to World Politics
ECON 200 Basic Economics or ECON 201/211 Princ. of Econ.
GEOG 104/114 Human Geography
PSYC 150/151 General Psychology
SOCI 100/111 Introduction to Sociology

Advanced Studies Requirements

Two courses (6 credits) required:

Must be 300-400 level courses taken after 56 credits. Students may substitute an approved senior capstone course in their major taken after 86 credits for one of the two required Advanced Studies courses. The other course **must** be outside the major. The following may not be used to fulfill Advanced Studies requirements:

- Professional Writing courses
- Courses used to meet Distributive Studies requirements
- Internships or other experiential learning types of courses
- Courses taken on a pass/fail basis

One independent studies course *(minimum of three credits, outside the major)* may be used toward Advanced Studies requirements as long as it is consistent with the rules above and approved by the Engineering Coordinator.

Summary of Pre-Engineering Requirements

1. Engineering Science Courses *(12 hours)*

ENES 100 Introduction to Engineering Design
ENES 102 Statics
ENES 220 Mechanics of Materials
ENES 221 Dynamics

2. Required Courses in Other Departments *(40 hours)*

CHEM 101 General Chemistry I *(Meets GEP requirement)*
CHEM 133 General Chemistry for Engineers *(preferred)*
or CHEM 102 General Chemistry II
ENGL 101 Freshman Composition *(Meets GEP requirement)*
ENGL 339 Scientific Writing or ENGL 338 Technical Writing *(Meets GEP requirement)*
MATH 236 Calculus I *(Meets GEP requirement)*
MATH 237 Calculus II
MATH 238 Calculus III
MATH 432 Differential Equations
PHYS 261 Principles of Physics I: Mechanics *(Meets GEP requirement)*
PHYS 262 Principles of Physics II: Electricity and Magnetism
PHYS 263 Principles of Physics III: Sound and Light

Summary of Engineering Requirements

1. Required Engineering Courses *(36 hours)*

ENME 232 Thermodynamics
ENME 350 Electronics and Instrumentation I
ENME 271 Numerical Methods in Mechanical Engineering
ENME 331 Fluid Mechanics
ENME 332 Transfer Processes
ENME 351 Electronics and Instrumentation II
ENME 361 Vibration, Controls and Optimization I
ENME 371 Product Engineering and Manufacturing
ENME 462 Vibration, Controls and Optimization II
ENME 382 Engineering Materials and Manufacturing Processes
ENME 392 Statistical Methods for Product and Process Development
ENME 472 Integrated Product and Process Development *(Capstone)*

2. Elective Hours in Department *(18 hours)*