Other Graduate Courses

The 400- and 500-level courses listed below are offered by Southern Illinois University for graduate credit.

AGRICULTURE

Courses (AGRI)

401-3 Fundamentals of Environmental Education. (Same as FOR 401 and REC 401) A survey course designed to help education majors develop an understanding of environmental education principles and teaching both inside and outside the classroom. Requires field trip transportation fee not to exceed $25 per course registration. Prerequisite: ten hours of biological science or ten hours of recreation and/or education, or consent of instructor.

423-3 Environmental Interpretation. (Same as FOR 423 and REC 423) Principles and techniques of natural and cultural interpretation. Two hours lecture, three hours laboratory. Requires field trip transportation fee not to exceed $40 per course registration. Prerequisite: ten hours biological science or ten hours of recreation.

450-2 Farming Systems Research and Development. An introduction to farming systems, which is an interdisciplinary approach to agricultural research and development emphasizing small farms. The whole farm is viewed as a system of interdependent components controlled by the farm household. Focuses on analyzing interactions of the-se components as well as the physical, biological and socioeconomic factors not controlled by the household. Techniques of analysis are applicable domestically and internationally.

481-1 International Agricultural Seminar. Discussion of special topics relating to worldwide agricultural development. Special approval needed from the instructor.

595-1 to 6 Instruction in Agricultural Sciences. Acquaints the student with different teaching environments and styles. Students will be expected to participate in instructing agricultural sciences courses. Special approval needed by the instructor.

ARMY MILITARY SCIENCE

Courses (AMS)

402-4 Mission Command and the Company Grade Officer. An exploration of the dynamics of leading in complex situations during Unified Land Operation I, II, and III and the Art of Command and how to communicate effectively with Non-Commissioned Officers (NCO) and soldiers during Taking Charge 1, 2, and 3 and Developing Others (counseling). Cadets will discuss various situations regarding the affects of ethical decisions on personnel and the unit mission. Cadets will be introduced to Comprehensive Soldier Fitness, Being Ready Resilient and the Individual and Family Readiness, which will enable future soldiers and families to manage stress during certain times. The course will focus on preparing cadets for Basic Officer Leader Course (BOLC) and the first unit assignment. Primary focus will be preparing cadets to serve as commissioned officers in the U.S. Army. Includes weekly leadership laboratory.

404-2 U.S. Military History. This course provides a historical perspective to decisions made by American military leaders; emphasizing solutions to challenges future Army officers might face: battlefield complexity, resource limitations, teamwork deficiencies, etc. The student will learn how former military leaders confronted and coped with similar issues, using their experiences and approaches to arm students with the ability to create their own solutions. Commissioning requirement for Army ROTC cadets. Course not restricted to ROTC cadets.

AVIATION

Courses (AVM)

551-3 Aviation Policy, Law, and Regulation. (Same as POLS 551) Examination of the history of American aviation policy, law and regulation. The course focuses primarily on the development, implementation and enforcement of aviation policies and regulations at the federal level. Special attention is paid to the interaction of various government agencies and constituency groups, such as the aircraft industry, airport authorities, airlines, private pilots and passengers. In addition to the historical survey, students will analyze current policy and regulatory trends and identify future problems and opportunities for American aviation policy. Restricted to enrollment in MPAA graduate program or consent of instructor.

552-3 Advanced Airport Administration. (Same as POLS 552) This course will address the role and function of the airport administrator, especially related to the tasks of developing, operating and maintaining various airport services to meet the needs of key airport users. This course will study key airport administration cases at primary, commercial service, reliever and general aviation airports. Meeting key airport regulations concerning operations and security will be a focus of the course. Restricted to enrollment in MPAA graduate program or consent of instructor.

553-3 Advanced Airport Safety Administration. (Same as POLS 553) The Aviation Safety Administrator’s job function and responsibility for safety and accident prevention within an aviation, organization is examined using the case study method. The relevant theory, concepts, procedures and techniques of resource allocation, organizational design, decision modeling, task assignment, delegation of authority and responsibility, establishment of organizational goals and priorities and risk management as they relate to Aviation Safety are included. The job functions of an Aircraft Accident Investigation Team and an Aviation Safety Inspector will be studied. Aviation safety administration literature will be reviewed. Restricted to enrollment in MPAA graduate program or consent of instructor.

ENGINEERING TECHNOLOGY

Courses (ET)

There is no graduate program offered through engineering
technology. See manufacturing systems for graduate program
description. Four-hundred-level courses in this listing may be
taken for graduate credit unless otherwise indicated in the
course description.
The student is required to purchase photographs and maps
for certain courses, and a suitable slide rule is strongly rec-
ommended for most courses. Cost is approximately $10 to $25.

**403A-4 Electronic Circuit Analysis.** This course studies fun-
damental solid-state electronic concepts, the application and
design of transistor amplifiers, and operational amplifiers, and
the analysis and design of field effect transistor (FET) ampli-
fiers. Course topics include the ideal operational amplifier, di-
odes, rectifiers, analysis and design of bipolar transistors (BJT)
amplifiers, and the analysis and design of field effect transistor
(FET) amplifiers. A laboratory emphasizes electronic circuit de-
sign and analysis. Prerequisite: ET 304b. Restricted to College
of Engineering students or departmental approval required.
Restricted to Junior/Senior standing.

**403B-4 Electronics Application and Design.** This course focuses
on system-level design and application of electronics circuits.
Circuits include linear integrated circuits, quasi-linear circuits,
integrated digital circuits, and pulse wave-form generating and
timing circuits. Topics include power amplifiers, Schmitt trig-
ners, comparators, timers and active filters. A design labora-
tory allows students to implement several design projects with
increasing complexity. Prerequisite: ET 403A. Restricted to
College of Engineering students or departmental approval re-
quired. Restricted to Junior/Senior standing.

**437A-4 Telecommunication Systems Fundamentals.** This course is a study of the fundamental concepts of analog and
digital communication systems in addition to a survey of the state
of the art of current and emerging communication technologies.
Topics include modulation, signal encoding, transmission me-
dia, multiplexing, cellular, Bluetooth, Wi-Fi, WiMAX and LTE-
Advanced. Associated labs reinforce the concepts introduced and
allow students to stimulate and build real systems. (Lec-
ture + Lab). Prerequisite: ET 304B with a minimum grade of C.
Restricted to College of Engineering students or departmental approval required. Restricted to Junior/Senior standing.

**437B-4 Data and Computer Communication.** This course is a study of data and computer networks. Students are introduced
to communication protocols, networking technologies and the
various computer networks topologies. The OSI (Open Systems
Interconnection) model is used as a guide in introducing the
purpose and underlying principles of the existing communica-
tion protocol standards. This course concludes with an overview of
emerging communication standards and technologies. Top-
ics include LAN, WAN, TCP/IP, Routing, and Data Link layer.
Associated labs reinforce the concepts introduced and allow
students to stimulate and build real systems. Lecture + Lab.
Prerequisite: ET 437A with a minimum grade of C. Restricted
to College of Engineering students or departmental approval required. Restricted to Junior/Senior standing.

**439-4 Microprocessor Applications and Design.** This course introduces embedded systems design and micro-controller pro-
gramming. Students study microcontroller architectures and
and design applications. The course emphasizes interfacing micro-
controllers with sensors and actuators. Software tools like Mat-
lab and Simulink aid in visualization and Model-Based Design.
A laboratory provides programming/design experience. Prereq-
isite: ET 238, ENGR 222B, or CS 202. Restricted to College of
Engineering students or departmental approval required. Re-
stricted to Junior/Senior standing.

**445-3 Computer-Aided Manufacturing.** (Same as Industrial
Technology 445) Introduction to the use of computers in the
manufacuring of products. Includes the study of direct and
computer numerical control of machine tools as well as interac-
tion with process planning, inventory control and quality con-
trol. Laboratory. Prerequisite: IT 208, Math 111 or Math 108 &
109. Restricted to College of Engineering students or depart-
mental approval required. Restricted to Junior/Senior standing.

**455-3 Industrial Robotics.** (Same as IT 455) Study of robotics
within a wide variety of application areas. Topics covered
include classification of robots, sensor technology, machine vi-
sion; control systems, including programmable logic controllers
(PLCs); robot safety and maintenance; and economic justifica-
tion of robotic systems. Prerequisite: Math 111 or Math 108 &
109. Restricted to College of Engineering students or depart-
mental approval required. Restricted to Junior/Senior standing.

**FASHION DESIGN AND MERCHANDISING**

**Courses (FDM)**

**431-3 Ethnic Dress.** The study of ethnic dress in non-western
cultures, with attention to aesthetics, symbolism and uses of
ethnic dress. Cultures studied may vary with each offering.
May be repeated for credit.

**432-3 Historic Clothing: Western Cultures.** Development of
clothing in Western civilization to 1850. Consideration of social,
ecoomic, aesthetic factors and technical innovations influencing
clothing.

**433-3 History of Western Costume, 1860 to Present.** Evolution of
Western costume from 1860 through the present time. Em-
phasis on the interrelationship between costume, social, politi-
cal, economic, and technical changes.

**441-3 Fashion Product Analysis.** Examines how quality and
value of apparel products are visually evaluated by industry
and consumers. Prerequisite: FDM 101, 241.

**462-3 Fashion Motivation.** Psychological motivation for wear-
ing clothing, societal functions of clothing, cultural differences
in dress. Prerequisite: FDM 102.

**481-3 Contemporary Issues in Fashion.** A forum geared toward
seniors and graduate students in fashion design and merchan-
dising that focuses on current issues in the softgoods industry.
May re-enroll for a maximum of six credits.
482-3 Fashion Merchandising. Focus on the entire process of fashion merchandising: strategic planning; branding; trend forecasting; consumer research; product development; buying, pricing, and costing; product sourcing or manufacturing; retail operations; and presentation to the consumer. Prerequisite: FDM 281.

490-1 to 4 Readings. Supervised reading for qualified students in the area of Fashion Design and Merchandising.

493-1 to 5 Advanced Occupational Skills. Modern occupational practice in fashion design and merchandising for experienced professionals seeking advanced techniques.

494-1 to 4 Workshop. Current work education issues for teachers, supervisors and administrators.

495-2 to 12 Instructional Internship. Internship in approved education and/or training centers. Intern instructor will increasingly assume responsibilities for preparing, presenting and guiding occupational learning in fashion design and merchandising.

496-2 to 12 Professional Internship. Provides a super-vised experience in a professional setting in the fashion industry. Activities must be related to the student’s academic program and career objectives. Reports and assignments are required to be completed by the student. Mandatory pass/fail.

497-1 to 6 Practicum. Application of work education skills and knowledge. Cooperative arrangements with corporations and professional agencies to study under specialist. Prerequisite: twenty hours in specialty.

498-1 to 5 Special Problems. Investigation of work education problems in fashion design and merchandising.

INDUSTRIAL TECHNOLOGY

There is no graduate degree program offered through industrial technology. See Manufacturing Systems for graduate program descriptions.

Courses (IT)

405-4 Applied Robotics and Control Lab. Laboratory experiments to familiarize the student with writing robotic programs for performing specific tasks, developing and debugging PLC code, integrating robotic programming and PLC programming in the control of a robotics cell, developing basic programming skills using computer simulation packages; milling and lathing applications of CNC machining. Prerequisite: IT 445 or ET 445 and IT 455 or concurrent enrollment in both. Restricted to College of Engineering students or departmental approval required. Restricted to Junior/Senior standing.

430-3 Health and Injury Control in a Work Setting. (Same as Health Education 430) Assesses the health and injury control programs present in a work setting. Emphasis given to employee programs in health, wellness and injury control that are effective. Field trips to work sites are included. Restricted to College of Engineering students or departmental approval required.

440-3 Manufacturing Policy. Review of all areas covered by the industrial technology program. Includes problems which simulate existing conditions in industry. Students present their solutions to the class and to the instructor in a formal manner. Restricted to College of Engineering students or departmental approval required.

445-3 Computer-Aided Manufacturing. (Same as Engineering Technology 445) Introduction to the use of computers in the manufacture of products. Includes the study of direct and computer numerical control of machine tools as well as interaction with process planning, inventory control and quality control. Laboratory. Prerequisite: IT 208, MATH 111 or MATH 108 & 109. Restricted to College of Engineering students or special approval needed from the department. Restricted to Junior/Senior standing.

450-3 Project Management. This course is designed to provide students with an overview of the project management process followed by an in-depth examination of the activities needed to successfully initiate, plan, schedule, and control the time and cost factors of the project. Prerequisite: None. Restricted to College of Engineering students or special approval needed from the department. Restricted to Junior/Senior standing.

455-3 Industrial Robotics. (Same as ET 455) Study of robotics within a wide variety of application areas. Topics covered include classification of robots, sensor technology, machine vision; control systems, including programmable logic controllers (PLCs); robot safety and maintenance; and economic justification of robotic systems. Prerequisite: MATH 111 or MATH 108 & 109. Restricted to College of Engineering students or special approval needed from the department. Restricted to Junior/Senior standing.

465-3 Lean Manufacturing. This course will cover the principles and techniques of lean manufacturing. Major topics covered include lean principles, SS, value stream mapping, total productive maintenance, manufacturing/office cells, setup reduction/quick changeover, pull system/Kanbans, continuous improvement/Kaizen, lean six sigma, lean simulation, and other modern lean manufacturing technologies and issues. Restricted to College of Engineering students or special approval needed from the department. Restricted to Junior/Senior standing.

470A-3 Six Sigma Green Belt. Study the knowledge areas of Six Sigma Green Belt. Topics include six sigma goals, lean principles, theory of constraints design for six sigma, quality function deployment, failure mode and effects analysis, process management, team dynamics, project management basics, data and process analysis, probability and statistics, measurement system analysis, and process capability. Restricted to College of Engineering students or special approval needed from the department. Restricted to Junior/Senior standing.

470B-3 Six Sigma Green Belt II. The objective of this course is to provide the student with a complete coverage of the statistical and analytical tools used and applied in the “Six Sigma” methodology at the green-belt level. Topics include: discrete probability distributions, continuous probability distributions, statistical process control tools, quality control charts, process capability analysis, gauge and measurement capability studies, cumulative sum control charts and exponentially-weighted moving average control charts. Prerequisite: IT 307 or MATH 140, IT 470A, Restricted to College of Engineering students or special approval needed from the department. Restricted to Junior/Senior standing.

475-3 Quality Control. Study the principles and techniques of modern quality control practices. Topics include total quality management, fundamentals of statistics, control charts for
variables and other quality related issues and techniques. Prerequisite: senior standing. Restricted to College of Engineering students or departmental approval required.

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<th>Course Number</th>
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<tr>
<td>476-3</td>
<td>Supply Chain Design and Strategy.</td>
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The objective of this course is to introduce the basic principles and techniques of supply chain design and strategy. Major topics covered include supply chain network analysis and design, sourcing materials and services, producing goods and services, supply chain sustainability, strategic challenges and change for supply chains, supply chain relationships, supply chain performance measurement and financial analysis, managing information flow and other modern supply chain management techniques and issues. Prerequisite: IT 376 with a minimum grade of C. Restricted to Junior/Senior standing. Restricted to College of Engineering students or departmental approval required. Restricted to Junior/Senior standing.

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<tr>
<td>480-3</td>
<td>Six Sigma Black Belt.</td>
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</table>

The purpose of this course is to provide the student with a comprehensive coverage of the knowledge areas and tools of Six Sigma beyond green-belt training, focusing on descriptive and analytical methods to deal with variability including point and interval estimation, hypothesis testing, and design of experiments. Topics include: confidence intervals, hypothesis testing, regression analysis, analysis of variance, single factor experiments, block design of experiments. Prerequisite: Industrial Technology 307 or equivalent, Industrial Technology 470B. Restricted to College of Engineering students or special approval needed from the department. Restricted to Junior/Senior standing.

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<tr>
<td>485-3</td>
<td>Quality Control II.</td>
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Study the principles and techniques of modern quality control practices. Topics include fundamentals of probability, control charts for attributes, acceptance sampling systems, reliability and other quality related issues and techniques. Prerequisite: senior standing. Restricted to College of Engineering students or departmental approval required.

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<tr>
<td>490-3</td>
<td>Six Sigma.</td>
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</table>

Six Sigma is a data-driven management system with near-perfect-performance objectives that has been employed by leading corporations. Its name is de-rived from the statistical target of operating with no more than 3.4 defects per one million chances, but its principles can be applied in business of all types to routinely reduce costs and improve productivity. This overview describes what Six Sigma is, and what its techniques and tools are. Prerequisite: 475. Restricted to College of Engineering students or departmental approval required.

### MEDICAL EDUCATION PREPARATION

No graduate degree program is offered through medical education preparation. Four-hundred-level courses may be taken for graduate credit only with written permission of the relevant department and the graduate dean.

#### Courses (MEDP)

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<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tr>
<td>400A-1</td>
<td>MEDPREP Seminar-Orientiation.</td>
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</table>

Seminar on social, professional, and scientific issues of interest to students planning a career in medicine or dentistry. Required of first-year MEDPREP participants. Restricted to MED-PREP students. Must be taken in A,B,C sequence. Mandatory Pass/Fail.

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<tr>
<td>400B-1</td>
<td>MEDPREP Seminar-Medical/Dental Seminar I.</td>
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</tbody>
</table>

Seminar on social, professional, and scientific issues of interest to students planning a career in medicine or dentistry. Required of first-year MEDPREP participants. Restricted to MEDPREP students. Must be taken in A,B,C sequence. Mandatory Pass/Fail.

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<tr>
<td>400C-1</td>
<td>MEDPREP Seminar-Medical/Dental Seminar II.</td>
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</table>

Seminar on social, professional, and scientific issues of interest to students planning a career in medicine or dentistry. Required of first-year MEDPREP participants. Restricted to MEDPREP students. Must be taken in A,B,C sequence. Mandatory Pass/Fail.

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<th>Course Number</th>
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<tr>
<td>401A-1</td>
<td>MEDPREP Skills-Academic Enrichment.</td>
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Focus on skills critical for academic success in preprofessional and professional training. Required of all students. Restricted to MEDPREP students.

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<th>Course Number</th>
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<tr>
<td>401B-1</td>
<td>MEDPREP Skills-Prematriculation (P/F only).</td>
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Focus on skills critical for academic success in preprofessional and professional training. Restricted to MEDPREP students.

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<th>Course Number</th>
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<tr>
<td>401C-1</td>
<td>MEDPREP Skills-Quantitative Skills (P/F only).</td>
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Focus on skills critical for academic success in preprofessional and professional training. Restricted to MEDPREP students.

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<th>Course Number</th>
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<tr>
<td>401D-1</td>
<td>MEDPREP Skills-Problem Solving (P/F only).</td>
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Focus on skills critical for academic success in preprofessional and professional training. Restricted to MEDPREP students.

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<th>Course Number</th>
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<tr>
<td>401E-1</td>
<td>MEDPREP Skills-Convocation (S/U only).</td>
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Focus on skills critical for academic success in preprofessional and professional training. Required of all students. Restricted to MEDPREP students.

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<th>Course Number</th>
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<tr>
<td>401F-1</td>
<td>MEDPREP Critical Reading Skills.</td>
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Focus on skills critical for academic success in preprofessional and professional training. Restricted to MEDPREP students.

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<tr>
<td>401G-1</td>
<td>MEDPREP Critical Reading Skills.</td>
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Focus on skills critical for academic success in preprofessional and professional training. Restricted to MEDPREP students.

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<tr>
<td>401H-1</td>
<td>MEDPREP Critical Reading Skills.</td>
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Focus on skills critical for academic success in preprofessional and professional training. Restricted to MEDPREP students.

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<th>Course Number</th>
<th>Course Title</th>
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<tr>
<td>401I-1</td>
<td>MEDPREP Skills-Career Development Skills (P/F only).</td>
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Focus on skills critical for academic success in preprofessional and professional training. Required of all students. Restricted to MEDPREP students.

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<tr>
<th>Course Number</th>
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<tr>
<td>402A-1</td>
<td>MEDPREP Behavioral and Social Sciences Applications.</td>
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Content may be supplemental (to concurrent behavioral and social science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

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<th>Course Number</th>
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<tr>
<td>402B-1</td>
<td>MEDPREP Special Problems-Research Seminar.</td>
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Seminars, workshops, lectures, and field experiences related to preparing the student for medi-cal/dental school and careers in medicine or dentistry. Restricted to MEDPREP students.

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<th>Course Number</th>
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<tr>
<td>402C-1</td>
<td>MEDPREP Special Problems-Clinical Experience.</td>
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</tbody>
</table>

Mandatory P/F. Seminars, workshops, lectures, and field experiences related to preparing the
student for school and careers in medicine/dentistry. Restricted to MEDPREP students.

**402D-3 MEDPREP Special Problems-Problem-Based Learning (P/F only).** Seminars, workshops, lectures, and field experiences related to preparing the student for medical/dental school and careers in medicine or dentistry. Restricted to MEDPREP students.

**402E-1 to 2 per topic MEDPREP Special Problems-Independent Readings.** Seminars, workshops, lectures, and field experiences related to preparing the student for medical/dental school and careers in medicine or dentistry. Restricted to MEDPREP students.

**402F-1 to 2 per topic MEDPREP Special Problems-Independent Research.** Seminars, workshops, lectures, and field experiences related to preparing the student for medical/dental school and careers in medicine or dentistry. Restricted to MEDPREP students.

**403A-1 to 3 MEDPREP Biology Applications-Medical Genetics.** Content may be supplemental (to con-current biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403B-1 to 3 MEDPREP Medical Pharmacology.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403C-1 to 3 MEDPREP Biology Applications-Cardiovascular Physiology.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration) or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403D-1 to 3 MEDPREP Biology Applications-Embryology.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403E-1 to 3 MEDPREP Biology Applications-Medical Immunology.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403F-1 to 3 MEDPREP Biology Applications-Hormonal Regulation.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403G-1 to 6 MEDPREP Biology Applications-Biology Applications.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403H-1 to 6 MEDPREP Biology Applications-Neural Science.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**403I-1 to 3 MEDPREP Biology Applications-Biology Problem Solving.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**404A-1 to 3 per topic MEDPREP Chemistry Applications-Inorganic Chemistry Applications.** Content may be supplemental (to concurrent preprofessional chemistry courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**404B-1 to 3 per topic MEDPREP Chemistry Applications-Inorganic Chemistry (For Dental Students).** Content may be supplemental (to concurrent preprofessional chemistry courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**404C-1 to 3 per topic MEDPREP Chemistry Applications-Organic Chemistry Applications.** Content may be supplemental (to concurrent preprofessional chemistry courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**404D-1 to 3 per topic MEDPREP Chemistry Applications-Organic Chemistry for Dental Students.** Content may be supplemental (to concurrent preprofessional chemistry courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**404E-1 to 3 per topic MEDPREP Chemistry Applications-Biochemistry.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students enrolled in Master's level program.

**404F-1 to 3 per topic MEDPREP Chemistry Applications-Chemistry Problem Solving.** Content may be supplemental (to concurrent preprofessional chemistry courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students.

**405A-1 to 6 per topic MEDPREP Physics Applications.** Content may be supplemental (to concurrent preprofessional physics courses), additional (permitting acceleration), or preparational for the MCAT. Restricted to MED-PREP students.

**405B-1 to 3 per topic MEDPREP Physics Applications-Physics Problem Solving.** Content may be supplemental (to concurrent preprofessional physics courses), additional (permitting acceleration), or preparational for the MCAT. Restricted to MEDPREP students.

**503B-1 to 3 Medical Pharmacology.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students enrolled in Master’s level program.

**503E-1 to 3 MEDPREP Medical Immunology.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students enrolled in Master’s level program.

**504E-1 to 3 Biochemistry.** Content may be supplemental (to concurrent biological science courses), additional (permitting acceleration), or preparational for the MCAT/DAT. Restricted to MEDPREP students enrolled in Master’s level program.
SCIENCE

Courses (SCI)

500-2 Science Information Sources. Methods and procedures to efficiently exploit the scientific literature are discussed. The two-hour class discussion will be supplemented by practical exercises in library usage. Special approval needed from the instructor.


502-4 (2,2) Research Scanning Electron Microscopy. (a) Theory of design for scanning electron microscope, lenses, vacuum systems, alignment, specimen preparation for biologists and materials scientists, darkroom. (b) Laboratory practical experience in use of scanning electron microscope and specimen preparation. Laboratory fee $100.

503A-1 to 3 Science for Elementary School Teachers. In-depth studies of selected basic concepts in general science for teachers of upper-level elementary grades. Topics include cells and simple organisms, characteristics of vertebrates, plate tectonics, solar system, nature of matter and magnetism. Prerequisite: currently teaching in an elementary school.

503B-1 to 3 Science for Elementary School Teachers. In depth studies of selected basic concepts in general science for teachers of upper-level elementary grades. Topics include human biology, characteristics of high plants, Earth’s building blocks, the atmosphere, forces and simple machines. Prerequisite: currently teaching in an elementary school.

504-9 (1 to 3 per topic) Selected Topics in Science for Teachers. The course consists of selected basic concepts in general science for practicing teachers. Within a given semester a broad area is selected within either the biological sciences or the physical/earth sciences. Topics currently include: (a) Basic stream ecology; (b) Biological assessment of polluted streams; and, (c) Wetland ecosystems. Other topics may be added as deemed necessary. This course may not be used for graduate credit by College of Science majors. Prerequisite: currently teaching in an elementary school.

Post BS Certificate in MRI

Courses (RAD)

444-3 Central Nervous System Imaging in Magnetic Resonance Imaging. Lecture includes discussion of imaging applications of the central nervous system. Review of related anatomy and common pathologies. Special approval needed from the instructor.

454-3 Body Imaging in Magnetic Resonance Imaging. Lecture includes discussion of imaging applications of the gastrointestinal, genitourinary, hepatobiliary and musculoskeletal systems. Review of related anatomy and common pathologies. Special approval needed from the instructor.

464-3 Cardiovascular Imaging in Magnetic Resonance Imaging. Lecture includes discussion of imaging applications of the heart and coronary arteries. Review of related anatomy and common pathologies. Special approval needed from the instructor.

474-6 Advanced MRI Internship. During this clinical internship, the student will be assigned to a selected clinical education center for the entire semester. During this semester, while performing routine MRI procedures, the student will perform MRI procedures of the heart, body, and extremities. Special approval needed from the instructor.

484-3 Special Topics in MRI/MRA. Supervised readings of selected topics in MRI. Special approval needed from the instructor.

494-1 - 6 Independent Study in Magnetic Resonance Imaging. The selection and investigation of a topic related to MRI. Special approval needed from the instructor.