

**SURGERY**

**SUR**

**Department of Surgery  
College of Human Medicine**

**608. Basic Surgery Clerkship**

Fall, Spring, Summer. 6 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course.  
P: FMP 602. R: Open only to graduate-professional students in College of Human Medicine.  
The surgical patient, surgical diagnosis, pre-operative evaluation and post-operative care.

**609. Otolaryngology Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Common otolaryngologic disorders, emergencies. Diagnosis and treatment. Primary physician's judgments about management.

**610. Plastic Surgery Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Principles of wound healing and tissue repair. Indications and applications of plastic surgery procedures.

**611. Urology Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Demonstration of clinical manifestations of genito-urinary disease, investigative methods and techniques of diagnosis and management. Urologic emergencies and performance of basic urologic skills.

**613. Orthopedic Surgery Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Diagnosis and management skills in common orthopedic problems. Orthopedic emergencies.

**614. Neurosurgery Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Problems related to common emergent and elective neurosurgery involving the brain, spine, and peripheral nerves. Neurological examinations, diagnostic methods.

**615. Ophthalmology Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Medical and surgical treatment of eye diseases. Clinical experiences include private office practice, surgical observations, pre-and post-operative care.

**616. Thoracic Surgery Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Problem solving in thoracic medicine and surgery. Pulmonary physiology. Diagnostic tools and tests, and indications for surgical procedures.

**618. Anesthesia Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Common anesthetic agents. Performing anesthetic procedures under faculty supervision.

**619. Sub-specialty Surgery Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Surgical domains not covered otherwise or in which students desire further exposure.

**620. Advanced Surgery Clerkship**

Fall, Spring, Summer. 6 credits.  
P: SUR 608, MED 608. R: Open only to graduate-professional students in College of Human Medicine.  
Advanced experience in critical care, trauma, and nutrition. Students must successfully complete several technical bedside procedures with more responsibility for patient care than in SUR 608.

**621. Surgical Nutritional Care Clerkship**

Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
P: SUR 608. R: Open only to graduate-professional students in College of Human Medicine.  
Clinical experience with nutrition team dealing with surgical and medical patients requiring therapeutic nutrition as a result of metabolic derangement and nutritional deficiencies.

**637. Core Competencies III**

Spring, Summer. 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Human Medicine, Medicine, Pediatrics and Human Development, Family Practice, and Obstetrics, Gynecology and Reproductive Biology. Administered by Human Medicine.  
P: FMP 602. R: Open only to graduate-professional students in College of Human Medicine.  
A weekly seminar addressing core knowledge and skills from an interdisciplinary perspective.

**801. Shock and Metabolism**

Fall. 4(4-0)  
R: Open only to M.S. students in Surgery.  
Results of prolonged reduction in tissue perfusion on tissue metabolism, structure, and function at the systemic, cellular and subcellular levels. Pharmacologic interventions useful in volume resuscitation.

**802. Clinical Surgical Anatomy**

Spring. 4(2-4) Interdepartmental with Anatomy.  
R: Open only to Master's students in Surgery.  
Review of surgical anatomy. Detailed anatomical information through lecture and dissection sessions. Clinical interpretation of anatomy and surgical approaches.

**803. Enteral and Parenteral Nutrition**

Fall, Summer. 3(3-0)  
R: Open only to M.S. students in Surgery.  
Identification of individuals requiring nutritional support. Nutritional requirements in diseases. Delivery of total parenteral and enteral nutrition. Special problems.

**833. Intaglio Printing**

Fall, Spring. 2 to 8 credits. A student may earn a maximum of 40 credits in all enrollments for this course.  
R: Open only to Master of Fine Arts students in Studio Art. Approval of department.  
Theory and practice of intaglio printing as a means to create expressive imagery.

**840. Ceramics**

Fall, Spring. 2 to 8 credits. A student may earn a maximum of 40 credits in all enrollments for this course.  
R: Open only to Master of Fine Arts students in Studio Art. Approval of department.  
Advanced study in ceramics to foster independent development.

**850. Sculpture**

Fall, Spring. 2 to 8 credits. A student may earn a maximum of 40 credits in all enrollments for this course.  
R: Open only to Master of Fine Arts students in Studio Art. Approval of department.  
Advanced study in a variety of three-dimensional media to foster individual development.

**860. Graphic Design**

Fall, Spring. 2 to 8 credits. A student may earn a maximum of 40 credits in all enrollments for this course.  
R: Open only to graduate students in Studio Art. Approval of department.  
Planning and conceptualizing ideas for visual communication problems that are to be expressed in words and/or pictures. Design of research that will expose a mastery of visual aesthetics and concepts in information design.

**882. Seminar in Art Education**

Fall of even-numbered years. 3(3-0)  
R: Approval of department.  
Contemporary thought in art education. Current problems examined within an interdisciplinary framework.

**891. Special Topics in Art Education**

Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course.  
R: Approval of department.  
Special topics supplementing regular course offerings proposed by faculty on a group study basis for graduate students.

**892. Master of Fine Arts Seminar**

Fall. 3(3-0) A student may earn a maximum of 12 credits in all enrollments for this course.  
R: Open only to Master of Fine Arts students in Studio Art. Approval of department.  
Contemporary intellectual issues related to practice in the visual arts. Group critiques of individual scholarly and applied research.

**898. Master of Fine Arts Research**

Fall, Spring. 1 to 8 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
P: 12 graduate credits in student's studio art discipline.  
R: Open only to Master of Fine Arts students in Studio Art.  
Individual research project in the student's studio art discipline directed by major professor.

**Descriptions — Surgery  
of  
Courses**

**804. Research Design and Quantitative Techniques for Surgical Residents**  
Spring, 3(3-0)

R: Open only to students in master's degree program in Surgery.

Recognition and differentiation between experimental designs. Identification of strengths and weaknesses of a manuscript. Recognition and definition of statistical terms and common inferential techniques used in surgical research. Use of computer software in research.

**890. Seminars in Research**

Fall, Spring, Summer. 1 credit. A student may

earn a maximum of 5 credits in all enrollments for this course.

R: Open only to M.S. students in Surgery.

Philosophy and methods of research. Preparation and presentation of research data in research reports. Practical applications.

**899. Master's Thesis Research**

Fall, Spring, Summer. 3 to 4 credits. A student

may earn a maximum of 10 credits in all enrollments for this course.

P: SUR 801, SUR 802, SUR 803, SUR 804. R: Open only to M.S. students in Surgery. Approval of department.

**SYSTEMS SCIENCE**

**SYS**

**Department of Electrical  
Engineering  
College of Engineering**

**410. Systems Methodology**  
Spring, 2(1-3)

P: CE 370. R: Open only to Engineering Arts seniors. Completion of Tier I writing requirement.

Systems analysis and design. Needs analysis, system identification, graphical models. Team project required.

**TEACHER EDUCATION**

**TE**

**Department of Teacher Education  
College of Education**

**150. Reflections on Learning**

Fall, Spring, Summer. 3(3-0) Interdepartmental

with Counseling, Educational Psychology and Special Education.

Students' experiences as learners in comparison to psychological, sociological, and anthropological theories and assumptions about learning and teaching in and out of school.

**240. Diverse Learners in Multicultural Perspective**

Fall, Spring, Summer. 3(2-2) Interdepartmental

with Counseling, Educational Psychology and Special Education. Administered by Counseling, Educational Psychology and Special Education.

R: Not open to students with credit in TE 250. Communicative, linguistic, physical, sensory, behavioral, affective, and cognitive differences in learning in multicultural classrooms. Factors that mediate access to knowledge.

**250. Human Diversity, Power, and Opportunity in Social Institutions**  
Fall, Spring, Summer. 3(3-0)

Comparative study of schools and other social institutions. Social construction and maintenance of diversity and inequality. Political, social and economic consequences for individuals and groups.

**301. Learners and Learning in Context (W)**  
Spring, 4(3-4)

P: TE 150; TE 250 or CEP 240. R: Not open to freshmen and sophomores. Open only to Education majors and to students in Education specialization. Completion of Tier I writing requirement.

Role of social context and sociocultural background in learning. Natural and socially constructed differences among learners. Relationship among subject-specific knowledge, teaching and learning that subject, and the institutional and communal context. Multiple literacies.

**401. Teaching of Subject Matter to Diverse Learners (W)**

Fall, 5(3-8)

P: TE 301. R: Not open to freshmen and sophomores. Open only to Education majors and to students in Education specialization. Completion of Tier I writing requirement.

Examining teaching as enabling diverse learners to inquire into and construct subject-specific meanings. Adapting subject matter to learner diversity. Exploring multiple ways diverse learners make sense of the curriculum.

**402. Crafting Teaching Practice (W)**  
Spring, 6(4-8)

P: TE 401. R: Not open to freshmen and sophomores. Open only to Education majors and to students in Education specialization. Completion of Tier I writing requirement.

Gathering data on learners to inform content and instructional decisions. Deciding what should be taught for specific disciplines. Teachers' multiple roles and their professional, intellectual, sociopolitical, and communal responsibilities.

**405. Feminist Analyses of Education in the United States**

Fall of odd-numbered years. 3(3-0) Interdepartmental with Women's Studies. Administered by Women's Studies.

P: WS 201 or WS 202 or WS 203. R: Not open to freshmen or sophomores.

Feminist perspectives on the role of gender in structuring educational experiences in elementary and secondary school.

**490. Independent Study in Teacher Education**

Fall, Spring, Summer. 1 to 6 credits. A student

may earn a maximum of 6 credits in all enrollments for this course.

R: Not open to freshmen and sophomores. Open only to students with a teacher certification option. Approval of department.

Supervised individual or small group study of the practice of teaching.

**494. Field Experience in Teacher Education**

Fall, Spring. 1 to 10 credits. A student may

earn a maximum of 10 credits in all enrollments for this course.

R: Approval of Department

Supervised practica and/or observations in educational settings.

**495. Directed Teaching**

Fall, Spring. 9 credits. Interdepartmental

with Music. Administered by Music.

P: MUS 260, MUS 335, MUS 336, MUS 339, TE 250; MUS 457, MUS 458 or MUS 467, MUS 468. R: Open only to seniors in Instrumental Music Education, Stringed Instrument Music Education, and Vocal-General Music Education.

Supervised Music teaching experience in Schools, on-campus seminar required.

**501. Internship in Teaching Diverse Learners I**

Fall, 6(2-24)

P: TE 402. C: TE 801, TE 802 concurrently. R: Open only to students seeking teacher certification.

Directed and evaluated internship in heterogeneous classrooms. Teaching worthwhile content to students with varied learning needs. Theoretical and field-based explorations of common teaching dilemmas.

**502. Internship in Teaching Diverse Learners II**

Spring, 6(2-24)

P: TE 501. C: TE 803, TE 804 concurrently. R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 502A or CEP 502B or CEP 502C or CEP 502D.

Continuing internship in heterogeneous classrooms at selected schools. Increased emphasis on independent teaching. Maintaining classroom communities that ensure equitable access to important knowledge and skills. Assessing academic and social outcomes.

**801. Professional Roles and Teaching Practice I**

Fall, 3(2-3)

P: TE 402. C: TE 501, TE 802 concurrently. R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 801A.

Teachers' professional and ethical responsibilities. Connections of schools to other social agencies. Relations of teachers to colleagues, families, other social service providers, and community leaders. Roles in school governance.

**802. Reflection and Inquiry in Teaching Practice I**

Fall, 3(2-3)

P: TE 502. C: TE 501, TE 801 concurrently. R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 802A or CEP 802C or CEP 802D.

Qualitative and quantitative research methods on teaching and learning. Criteria for judging the validity and applicability of research-based knowledge. Framing educational problems worthy of inquiry. Designing and assessing studies of teaching practice.

**803. Professional Roles and Teaching Practice II**

Spring, 3(2-3)

P: TE 801. C: TE 502, TE 804 concurrently. R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 803A or CEP 803C or CEP 803D.

School-agency alliances for fostering student learning. Strategies for working with families and community groups to improve responsiveness of the school curriculum to student needs. Child advocacy in the school and community.

**804. Reflection and Inquiry in Teaching Practice II**

Spring, 3(2-3)

P: TE 802. C: TE 502, TE 803 concurrently. R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 804A or CEP 804C or CEP 804D.

Collecting, analyzing, and interpreting data on teaching, learning, and educational policy. Dilemmas surrounding research on practice. Appraising and reporting results of inquiry.