### STUDIO ART

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>885*</td>
<td>Lithography</td>
<td>Fall, Spring. 2 to 8 credits. May renew for a maximum of 16 credits.</td>
<td>Study of problems in M.F.A. degree candidates. Theory and practice of lithography as a means to create expressive imagery. QA: STA 810</td>
</tr>
<tr>
<td>883*</td>
<td>Intaglio Printing</td>
<td>Fall, Spring. 2 to 8 credits. May renew for a maximum of 40 credits.</td>
<td>Examination and review of contemporary intellectual issues related to the visual arts. Group critiques of individual scholarly and applied research. QA: STA 809</td>
</tr>
<tr>
<td>840*</td>
<td>Ceramics</td>
<td>Fall, Spring. 2 to 8 credits. May renew for a maximum of 40 credits.</td>
<td>For M.F.A. degree candidates. Advanced level ceramics involving contemporary issues of technique and content, experiences leading to independent development. QA: STA 804</td>
</tr>
<tr>
<td>860*</td>
<td>Sculpture</td>
<td>Fall, Spring. 2 to 8 credits. May renew for a maximum of 4 credits.</td>
<td>For M.F.A. &amp; M.A. degree candidates. Investigation and development of visual forms leading to questioning of perceptual responses used in design problem solving and clarification. QA: STA 806</td>
</tr>
<tr>
<td>882*</td>
<td>Seminar in Art Education</td>
<td>Fall of even-numbered years. 3(3-0). R: Approval of department.</td>
<td>Appraisal of contemporary thought in art education. Current problems examined within an interdisciplinary framework. Research and reports. QA: STA 825</td>
</tr>
<tr>
<td>883*</td>
<td>Critical Theory and Aesthetic Experience in Art Education</td>
<td>Spring of even-numbered years. 3(3-0). R: Approval of department.</td>
<td>Theories of art criticism and aesthetic experience. Application of these concepts for art education or related fields. QA: STA 826</td>
</tr>
<tr>
<td>884*</td>
<td>Curriculum Design for Art Education</td>
<td>Fall of odd-numbered years. 3(3-0). R: Approval of department.</td>
<td>Factors affecting art curriculum; analysis, preparation and evaluation. QA: STA 827</td>
</tr>
<tr>
<td>885*</td>
<td>Research Methods for Art Education</td>
<td>Spring of even-numbered years. 3(3-0). R: Approval of department.</td>
<td>Research design and methodologies applicable to the study of problems in art education; preparation and evaluation. QA: STA 828</td>
</tr>
<tr>
<td>886*</td>
<td>M.F.A. Seminar</td>
<td>Fall, Spring, Summer. 3(0). May renew for a maximum of 18 credits.</td>
<td>Examination and review of contemporary intellectual issues related to the visual arts. Group critiques of individual scholarly and applied research. QA: STA 810</td>
</tr>
<tr>
<td>888*</td>
<td>M.F.A. Thesis</td>
<td>Fall, Spring. 4 to 8 credits. May renew for a maximum of 16 credits.</td>
<td>For M.F.A. degree candidates. Examination and review of contemporary intellectual issues related to the visual arts. Group critiques of individual scholarly and applied research. QA: STA 809</td>
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### SURGERY

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<tr>
<td>608*</td>
<td>Basic Surgery Clerkship</td>
<td>P: FMP 602. R: Open only to graduate-professional students in College of Human Medicine.</td>
<td>The surgical patient, surgical diagnosis, pre-operative evaluation and post-operative care. QA: SUR 608</td>
</tr>
<tr>
<td>609*</td>
<td>Otolaryngology Clerkship</td>
<td>Fall, Spring, Summer. 6(6). May renew for a maximum of 18 credits.</td>
<td>For M.F.A. degree candidates. Examination and review of contemporary intellectual issues related to the visual arts. Group critiques of individual scholarly and applied research. QA: SUR 609</td>
</tr>
<tr>
<td>606*</td>
<td>Plastic Surgery Clerkship</td>
<td>Fall, Spring, Summer. 6(6). May renew for a maximum of 18 credits.</td>
<td>Common otolaryngologic disorders, emergencies. Diagnosis and treatment. Primary physician's judgment about management. QA: SUR 606</td>
</tr>
<tr>
<td>610*</td>
<td>Urology Clerkship</td>
<td>Fall, Spring, Summer. 6(6). May renew for a maximum of 18 credits.</td>
<td>Common otolaryngologic disorders, emergencies. Diagnosis and treatment. Primary physician's judgment about management. QA: SUR 606</td>
</tr>
<tr>
<td>611*</td>
<td>Orthopedic Surgery Clerkship</td>
<td>Fall, Spring, Summer. 6(6). May renew for a maximum of 18 credits.</td>
<td>Common otolaryngologic disorders, emergencies. Diagnosis and treatment. Primary physician's judgment about management. QA: SUR 606</td>
</tr>
<tr>
<td>612*</td>
<td>Neurosurgery Clerkship</td>
<td>Fall, Spring, Summer. 6(6). May renew for a maximum of 18 credits.</td>
<td>Common otolaryngologic disorders, emergencies. Diagnosis and treatment. Primary physician's judgment about management. QA: SUR 606</td>
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Courses are subject to revision and final approval.
802³. Clinical Surgical Anatomy
Spring. 6(4-3) May reenroll for a maximum of 6 credits.
Interdepartmental with the Department(s) of Anatomy.
R: MD or DO degree & acceptance into Master’s in Surgery program.
P: MD or DO accepted into MS in Surgery Program.
Review of surgical anatomy; the opportunity to obtain detailed anatomical information through lecture and dissection sessions; and the clinical interpretation of anatomy and surgical approaches.
QA: SUR 802

803³. Enteral and Parenteral Nutrition
Fall, Summer. 4(2-2)
R: M.D. or D.O. degree & acceptance into Master’s in Surgery program.
P: M.D.’s/D.O.’s accepted into M.S. in Surgery Program.
The identification of individuals requiring nutritional support; nutritional requirements in diseases; delivery of total parenteral and enteral nutrition; special problems in nutrition.
QA: SUR 803

804³. Research Design and Statistics
Spring. 4(c)
Students will recognize/differentiate between experimental designs; recognize/define statistical terms; determine appropriate statistical tests; determine strengths
d Control opportunities and yield of a manuscript

899. Seminars in Research
Fall, Spring, Summer. 1 to 7 credits.
May reenroll for a maximum of 7 credits.
R: M.D. or D.O. degree & acceptance into M.S. in Surgery program.
P: M.D.’s/D.O.’s accepted into M.S. in Surgery Program.
Preparation and presentation of research data, philosophy and methods of research, thesis and other research reports, literature review, illustration of research data, practical assignments.
QA: SUR 899

899. Master’s Thesis Research
Fall, Spring, Summer. 3 to 4 credits.
May reenroll for a maximum of 15 credits.
R: Satisfactory completion of SUR 801, 802, 803, 804 and approval of dept.
P: M.D.’s/D.O.’s accepted into M.S. in Surgery program.
QA: SUR 899

SYSTEMS SCIENCE

410. Systems Methodology
Spring. 2(1-3)
P: CS 370. R: Open only to Engineering Arts seniors.
Systems analysis and design, need analysis, system identification, graphical models. Team project required.
QA: CS 370
QA: 8410

810³. Systems I
Fall. 3(3-0)
P: MTH 214, SYS 120 or SYS 131 R: NONE
Introduction to systems methodology and analysis.
R: None to students with EE undergraduate background.
Lectures and state space analysis, feedback control, system simulation. Practical applications and problems in a range of disciplines.
QA: MTH 214
QA: SYS 810 SYS 811

811³. Systems II
Spring. 3(3-0)
P: SYS 810, STT 351 R: NONE
System modeling methodology and techniques, continuous and discrete system simulation, simulation model optimization with applications to optimal control, parameter estimation, applications and problems in a range of decision support contexts.
QA: SYS 811 STT 441 QA: SYS 811 SYS 814

TEACHER EDUCATION

150. Reflections on Learning
Fall, Spring, Summer. 3(3-0)
Intersessional with the Department(s) of Counseling, Educational Psychology and Special Education.
Students’ experiences as learners in comparison to psychological, sociological, and anthropological theories and analysis about learning and teaching in and out of school.

250. Human Diversity, Power, and Opportunity in Social Institutions
Fall, Spring, Summer. 3(3-0)
Comparative study of schools and other social institutions. Sociology of diversity and inequality. Political, social and economic consequences for individuals and groups.

301³. Learners, Learning, and Teaching in Context(W)
Fall. 4(3-3)
P: TE150 and TE225 or CSP240 R: Education
QA: TE101 TE200

302³. Learner Diversity and the Teaching of Subject Matter(W)
Spring, 3(3-0)
P: TE200 R: Education
Inquiry into teaching and learning of subject matter in context, with an examination of learners, communities, and pedagogy.

305³. Curriculum Methods and Materials: Elementary Education
Fall, Spring. 1 to 2 credits. May reenroll for a maximum of 3 credits.
R: Elementary certification candidates.
Elementary education candidates Curriculum in K-8 grades. Methods and materials of teaching elementary and middle school.
QA: TE305 TE305A TE305B

306³. Interdisciplinary Elementary Curriculum
Fall. 3(3-3)
R: Elementary certification candidates/Teacher certificated in Elementary Education emphasizes
Integrating reading and writing across the curriculum.
QA: TE306C TE307A TE308A

310³. Methods of Teaching Reading in the Elementary School
Fall, 2(2-0)
R: Elementary certification candidates.
Methods and materials for teaching reading at elementary level. Analysis of learning and teaching problems, study of concrete materials and instructional strategies.
QA: TE310 TE310A TE310B TE310C TE310D

312³. Literacy Instruction in the Elementary Grades
Fall. 2(1-3)
R: Elementary certification candidates.
Application of instructional principles introduced in TE310. Emphasis on nature of literacy, its cultural context, and re-investigating interventions.
QA: TE312 TE312D TE311C TE312A

313³. Critical Reading and Children’s Literature
Fall, Spring. 2(2-0)
R: Elementary certification candidates.
Development of strategy for helping children to develop critical reading skills through literary experiences.
QA: TE313 TE313B TE313D

314³. Teaching Mathematics in the Elementary Grades
Fall, Spring. 1 to 2 credits.
R: Elementary certification candidates.
Math methods and materials for teaching mathematics in the elementary school. Emphasis on problem-solving and meaningful presentation of mathematical concepts.
QA: TE316 TE316D TE316C

315³. Teaching Social Studies in Elementary Grades
Fall, Spring. 1 to 2 credits.
R: Elementary certification candidates.
Methods and materials for teaching social studies in elementary grades. Emphasis on understanding and historical context to address contemporary issues.
QA: TE316 TE316B TE316C

317³. Teaching Language Arts in the Elementary School
Fall, Spring. 2(2-0)
R: Elementary certification candidates.
Methods and materials for teaching language arts in elementary grades. Emphasis on interrelationships of listening, viewing, speaking, reading, and writing.
QA: TE317

319³. Teaching Science in the Elementary and Middle School
Fall, 2(2-0)
R: Elementary certification candidates.
Methods and materials for teaching science in elementary and middle school grades. Emphasis on teaching science for conceptual understanding.
QA: TE319 TE319B TE319C TE319D

322³. Methods of Teaching—Secondary Common Elements
Fall. 1(1-0)
R: Secondary certification candidates.
Instructional strategies common to all subject areas.
Selection of instructional techniques based on teacher values and belief systems, learner needs, and characteristics, and sound education principles.
QA: TE322

329³. Methods of Teaching—Secondary Subject Areas: English
Fall. 2(2-0)
R: Candidates for secondary teacher certification.
Specifics of classroom instruction in English. Selection of instructional techniques based on course objectives, needs and characteristics of learners, and sound educational and policies.
QA: TE326

Courses with an asterisk (*) have not been approved by the University Committee on Curriculum.