

CONSTRUCTION SCIENCE AND MANAGEMENT (CSM)

Construction Science and Management (CSM) Courses

CSM 5033. Construction Cost Estimating. (3-0) 3 Credit Hours.

Emphasis on pricing work, subcontracting, and bidding strategies utilizing applicable software. Generally offered: Fall, Spring. This course has Differential Tuition.

CSM 5133. Construction Practice in a Global Setting. (3-0) 3 Credit Hours.

Seminar dealing with national and international business and legal environments in the construction industry. Topics include agreement and delivery options, forms of construction, project procedures and administration, liability, contract documents, and ethics. This course has Differential Tuition. Course Fee: STSE \$30; SAP1 \$25.

CSM 5223. Building Information Modeling for Construction Management. (3-0) 3 Credit Hours.

Advanced techniques used in development and management of Building Information Models. Emphasis on constructability and management. This course has Differential Tuition.

CSM 5243. Sustainable Construction and Delivery. (3-0) 3 Credit Hours.

Sustainability principles applied to design, construction and operation of built environment. Emphasis on site management and constructability. This course has Differential Tuition.

CSM 5413. Advanced Topics in Construction Systems. (1-6) 3 Credit Hours.

The management of the construction process pertaining to large, complex, and unique buildings. The management of sustainable construction, adaptive use of existing buildings, and historic preservation projects will be included. (Formerly ARC 5413. Credit cannot be earned for both CSM 5413 and ARC 5413.) This course has Differential Tuition.

CSM 5423. Advanced Topics in Project Controls and Scheduling. (3-0) 3 Credit Hours.

Advanced techniques used in scheduling and planning processes in construction project control, including resource allocations and schedule recovery. This course has Differential Tuition.

CSM 5433. Construction Safety Planning and Management. (3-0) 3 Credit Hours.

Current construction safety and health issues. Development of site-specific plans and methodology to provide hazard reduction on job sites. This course has Differential Tuition.

CSM 5633. Technology and Project Management. (3-0) 3 Credit Hours.

Prerequisite: Consent of instructor. Organization and integration of construction resources and activities, including consideration of ethical practice, scheduling, construction methods, project planning and management, cost accounting, and personnel utilization. Formerly titled Advanced Construction Management. This course has Differential Tuition.

CSM 6643. Artificial Intelligence in Construction Management. (3-0) 3 Credit Hours.

This course introduces the concepts of artificial intelligence and machine learning to help construction students build data-driven solutions. Students will also learn to analyze multidimensional data and develop machine learning models in Python using datasets that are relevant to the CSM discipline. This course has Differential Tuition.

CSM 6943. Construction Internship. (0-0) 3 Credit Hours.

Prerequisite: Graduate standing, 18 semester credit hours of graduate work, and consent of instructor. Supervised full-time construction work experience with public agencies or private companies. Individual conferences and written reports required. This course has Differential Tuition.

CSM 6951. Independent Study. (0-0) 1 Credit Hour.

Prerequisite: Graduate standing and permission in writing (form available) from the instructor and the Graduate Advisor of Record. Independent reading, research, discussion, and/or writing under the direction of a faculty member. For students needing specialized work not normally or not often available as part of the regular course offerings. May be repeated for credit, but not more than 6 hours will apply to the degree. This course has Differential Tuition.

CSM 6953. Independent Study. (0-0) 3 Credit Hours.

Prerequisite: Graduate standing and permission in writing (form available) from the instructor and the Graduate Advisor of Record. Independent reading, research, discussion, and/or writing under the direction of a faculty member. For students needing specialized work not normally or not often available as part of the regular course offerings. May be repeated for credit, but not more than 6 hours will apply to the degree. This course has Differential Tuition.

CSM 6973. Special Topics. (3-0) 3 Credit Hours.

Prerequisite: Graduate standing or consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Topics courses may be repeated for credit when topics vary, but not more than 6 hours of CSM 6973 or 12 hours of CSM 6976 will apply to the degree. This course has Differential Tuition. Course Fee: STSE \$30; SAP1 \$25.

CSM 6976. Special Topics. (6-0) 6 Credit Hours.

Prerequisite: Graduate standing or consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Topics courses may be repeated for credit when topics vary, but not more than 6 hours of CSM 6973 or 12 hours of CSM 6976 will apply to the degree. This course has Differential Tuition.

CSM 7011. Construction Graduate Seminar. (1-0) 1 Credit Hour.

Will include presentations of current research by faculty, invited guests who are experts in fields related to construction science and management, and advanced graduate students who are about to complete their dissertation research. May be repeated for credit. The grade report for the course is either "CR" (satisfactory) or "NC" (unsatisfactory). This course has Differential Tuition.

CSM 7103. Decision-Making in Construction Management. (3-0) 3 Credit Hours.

Decision processes can range from quantitative computational analysis to qualitative experiential evaluations. This course provides a set of practical tools and theoretical frameworks to help construction managers address the challenges of decision-making and problem-solving. This course has Differential Tuition.

CSM 7113. Resiliency within the Built Environment. (3-0) 3 Credit Hours.

This course provides students with the opportunity to obtain a thorough understanding of resiliency issues and its interrelation with the built environment by retrospectively investigating technological progress, addressing current issues, and contemplating on possible futures. This course has Differential Tuition.

CSM 7203. Research Methods. (3-0) 3 Credit Hours.

This course provides guidance on research formulation and methodologies adopted for scientific and engineering experiments, model building and simulations, exploration and analysis of multidimensional data. Students are introduced to concepts necessary for producing research proposals, executing the research, and reporting the results. This course has Differential Tuition.

CSM 7211. Doctoral Research. (0-0) 1 Credit Hour.

Prerequisite: Consent of advisor. Research work carried out by the student under the supervision of their Dissertation Committee. May be repeated as necessary, but no more than 15 hours may be applied to the Doctoral degree. This course has Differential Tuition.

CSM 7212. Doctoral Research. (0-0) 2 Credit Hours.

Prerequisite: Consent of advisor. Research work carried out by the student under the supervision of their Dissertation Committee. May be repeated as necessary, but no more than 15 hours may be applied to the Doctoral degree. This course has Differential Tuition.

CSM 7213. Doctoral Research. (0-0) 3 Credit Hours.

Prerequisite: Consent of advisor. Research work carried out by the student under the supervision of their Dissertation Committee. May be repeated as necessary, but no more than 15 hours may be applied to the Doctoral degree. This course has Differential Tuition.

CSM 7311. Doctoral Dissertation. (0-0) 1 Credit Hour.

Prerequisite: Successful defense of comprehensive exam. Dissertation work carried out by the student under the supervision of their Dissertation Committee. May be repeated as necessary, but not more than 15 hours may be applied to the Doctoral degree. This course has Differential Tuition.

CSM 7312. Doctoral Dissertation. (0-0) 2 Credit Hours.

Prerequisite: Successful defense of comprehensive exam. Dissertation work carried out by the student under the supervision of their Dissertation Committee. May be repeated as necessary, but not more than 15 hours may be applied to the Doctoral degree. This course has Differential Tuition.

CSM 7313. Doctoral Dissertation. (0-0) 3 Credit Hours.

Prerequisite: Successful defense of comprehensive exam. Dissertation work carried out by the student under the supervision of their Dissertation Committee. May be repeated as necessary, but not more than 15 hours may be applied to the Doctoral degree. This course has Differential Tuition.