

Department of Civil & Environmental Engineering
Departmental Electives: Civil Engineering,
Effective Fall 2018

SCIENCE TECHNICAL ELECTIVES (take 3 credits)

These courses will only fulfill the "Science Technical Elective" and cannot be used to fulfill the requirement for either the "Engineering Technical Elective" or the additional "Technical Elective" noted below.

ATS 350	Intro to Weather and Climate	2 cr.
ATS 351	Intro to Weather and Climate Lab	1 cr.
BSPM 102	Insects, Science, and Society	3 cr.
BZ 110	Principles of Animal Biology	3 cr.
BZ120	Principles of Plant Biology	4 cr.
GEOL120	Exploring Earth: Physics Geology	3 cr.
GEOL 122	The Blue Planet: Geology of the Environment	3 cr.
GEOL150	Physical Geology for Scientists and Engineers	4 cr.
HORT/SOCR 171	Environmental Issues in Agriculture	3 cr.
LAND/LIFE 220	Fundamentals of Ecology	3 cr.
LIFE102	Attributes of Living Systems	4 cr.
MIP 149	Microbial World	3 cr.
NR 120A	Environmental Conservation	3 cr.
NR 130	Global Environmental Systems	3 cr.
NR 150	Oceanography	3 cr.
SOCR 240	Introductory Soil Science	4 cr.

ENGINEERING TECH ELECTIVES (take at least 9 credits)

CIVE 305	Intermediate AutoCAD	3 cr.
CIVE 330	Ecological Engineering	3 cr.
CIVE 413	Environmental River Mechanics	3 cr.
CIVE 423	Groundwater Engineering	3 cr.
CIVE 424	Modern Gas and Oil	3 cr.
CIVE 437	Wastewater Treatment Fac. Design	3 cr.
CIVE 439	Environmental Engineering Chemical Concepts	3 cr.
CIVE 440	Nonpoint Source Pollution	3 cr.
CIVE 442	Air Quality Engineering	3 cr.
CIVE 455	Applications in Geotechnical Engineering	3 cr.
CIVE 458	Environmental Geotechnics	3 cr.
CIVE 502	Fluid Mechanics	3 cr.
CIVE 507	Transportation Engineering	3 cr.
CIVE 508	Bridge Engineering	3 cr.
CIVE 510	Applied Hydraulic System Design	3 cr.
CIVE 511	Coastal Engineering	3 cr.
CIVE 512	Irrigation Systems Design	3 cr.
CIVE 514	Hydraulic Structures/Systems	3 cr.
CIVE 519	Irrigation Water Management	3 cr.
CIVE 520	Physical Hydrology	3 cr.
CIVE 521	Hydrometry	3 cr.
CIVE 522	Engineering Hydrology	3 cr.
CIVE 524	Modeling Watershed Hydrology	3 cr.
CIVE 525	Water Engineering: International Development	3 cr.
CIVE 531	Groundwater Hydrology	3 cr.
CIVE 532	Wells and Pumps	3 cr.
CIVE 533	Biomolecular Tools for Engineers	3 cr.
CIVE 538	Aqueous Chemistry	3 cr.
CIVE 540	Advanced Biological Wastewater Processing	3 cr.
CIVE 541	Environmental Unit Operations Treatment/Design	3 cr.
CIVE 542	Water Quality Modeling	3 cr.

CIVE 544	Water Resources Planning and Management	3 cr.
CIVE 546	Water Resources System Analysis	3 cr.
CIVE 547	Statistics for Environmental Monitoring	3 cr.
CIVE 549	Drainage and Wetlands Engineering	3 cr.
CIVE 550	Foundation Engineering	3 cr.
ENGR 550	Numerical Methods in Science and Engineering	3 cr.
CIVE 556	Seepage and Earth Dams	3 cr.
CIVE 558	Containment Systems for Waste Disposal	3 cr.
CIVE 559	Special Topics in Geotechnical Engineering	3 cr.
CIVE 560	Advanced Mechanics of Materials	3 cr.
CIVE 561	Advanced Steel Behavior and Design	3 cr.
CIVE 565	Finite Element Method	3 cr.
CIVE 566	Intermediate Structural Analysis	3 cr.
CIVE 567	Advanced Concrete Design	3 cr.
CIVE 568	Design of Masonry and Wood Structures	3 cr.
CIVE 571	Pipeline Engineering and Hydraulics	3 cr.
CIVE 572	Analysis of Urban Water Systems	3 cr.
CIVE 573	Urban Stormwater Management	3 cr.
CIVE 574	Civil Engineering Project Management	3 cr.
CIVE 575	Sustainable Water and Waste Management	3 cr.
CIVE 576	Engineering Applications of GIS & GPS	3 cr.
CIVE 577	GIS in Civil and Environmental Engineering	3 cr.
CIVE 578	Infrastructure and Utility Management	3 cr.

TECHNICAL ELECTIVES (only 3 credits of a 4 or 5 credit course will be applied toward a Technical Elective from this list). *Students may select from the list of courses below or they may select an additional course from the above "List of Approved Engineering Technical Electives" to fulfill this requirement.*

AA 301	Astrophysics I	5 cr.
BC 351	Principles of Biochemistry	4 cr.
CHEM 245	Fundamentals of Organic Chemistry	4 cr.
CHEM 345	Organic Chemistry	4 cr.
*°CON 365	Construction Estimating II	3 cr.
*°CON 367	Construction Contracts and Project Administration	3 cr.
*CON 370	Asphalt Pavement Materials & Construction	3 cr.
*°CON 461	Construction Project Scheduling & Cost Control	3 cr.
*°CON 496	Precast Bootcamp	1 cr.
ERHS 446	Environmental Toxicology	3 cr.
+*FIN 305	Fundamentals of Finance	3 cr.
GEOL 442	Applied Geophysics	4 cr.
LIFE 320	Ecology	3 cr.
MATH 332	Partial Differential Equations	3 cr.
MATH 369	Linear Algebra	3 cr.
+*MGT 305	Fundamentals of Management	3 cr.
MIP 300	General Microbiology	3 cr.
+*MKT 305	Fundamentals of Marketing	3 cr.
NR 319	Geospatial Applications in Natural Resources	4 cr.
NR 322	Introduction to Geographic Information Systems	4 cr.
NR 323	Remote Sensing and Image Interpretation	3 cr.
WR 304	Sustainable Watersheds	3 cr.

***These courses may require approval from the respective Department/College to enroll.**

°These course count towards the Construction Management Minor.

+At most, one course in business management or economics at the 300-level or above may be counted towards the technical elective requirement.