101 Elementary Chinese I
Fall. 5(5-0) P:CHS 101 Not open to students with credit in CHS 112.
Pronunciation, writing system, and basic vocabulary and sentence patterns, with emphasis on conversa-
tion.

102 Elementary Chinese II
Spring. 5(5-0) P:CHS 101 Not open to students with credit in CHS 105.
Further work on conversation, character writing, and comprehension, with increasing emphasis on vo-
cabulary building and grammar.

105 Introductory Chinese with Business Emphasis
Summer. 5(5-0) SA: CHS 111, CHS 112 Not open to students with credit in CHS 101.
Beginning-level speaking, listening comprehension, and reading for Chinese in business-related con-
texts. Economic conditions and business culture in China.

201 Second-Year Chinese I
Fall. 5(5-0) P:CHS 102
Intermediate-level work on skills in conversation, comprehension, and grammar. Practice in composi-
tion.

202 Second-Year Chinese II
Spring. 5(5-0) P:CHS 201
Further intermediate-level work on skills in conversa-
tion, comprehension, and grammar. Continued practice in composition.

301 Third-Year Chinese I
Fall. 4(4-0) P:CHS 202
Advanced-level work on speaking, listening comprehen-
sion, reading, and writing skills, based on mate-
rials of cultural interest.

302 Third-Year Chinese II
Spring. 4(4-0) P:CHS 301
Advanced-level work on speaking, listening comprehen-
sion, reading, and writing skills, based on mate-
rials of cultural interest.

350 Studies in the Chinese Language
Spring. 3(3-0) P:CHS 201
Grammatical structures of modern Chinese. Gram-
mar review, sound system, word formation, sen-
tence and discourse structures, historical evolution of the Chinese language, dialects, sociolinguistics.

401 Fourth-Year Chinese I
Fall. 3(3-0) P:CHS 302
Reading, discussion, and writing of advanced mate-
rials, including classical texts of broad cultural inter-
est.

402 Fourth-Year Chinese II
Spring. 3(3-0) P:CHS 401
Further reading, discussion and writing based on original materials, including classical texts of broad cultural interest.

499 Senior Thesis Research
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enroll-
ments for this course. R: Approval of de-
partment. An individual research project supervised by a fac-
ulty member that demonstrates the student’s ability to do independent research and submit or present a major paper.

CIVIL ENGINEERING  CE
Department of Civil and Environmental Engineering
College of Engineering

271 Engineering Surveying
Fall, Spring. 4(3-3) P: MTH 114 or MTH 116 or MTH 124 or MTH 132 or MTH 152H
Application of surveying and error analysis to civil engineering problems. Earth work. Calcula-
tions. Layout and management of construction sites.

280 Introduction to Environmental Engineering
Fall, Spring. 3(3-0) P: CEM 141 or CEM 151 or LBS 171 and (MTH 132 or concurrently or MTH 152H or concurrently or LBS 118 or concurrently)
Elements of hydrology. Groundwater and surface water supply and contamination. Treatment systems for drinking water, wastewater, air, and solid and hazardous waste. Noise and radiation pollution.

305 Introduction to Structural Analysis and Design
Fall, Spring. 4(3-2) P: MSM 211 R: Open only to seniors in the Depart-
ment of Civil and Environmental Engineering.
Analysis and design of structural systems. Loads estimation and placement. Structural analysis the-
ory. Manual and computer analysis methods and validation of results from computer analysis meth-
ods. Proportioning of structural members in steel and reinforced concrete. Applications including bridges and building frames.

312 Soil Mechanics
Fall, Spring. 4(3-3) P: MSM 211 and completion of Tier I writing requirement. R: Open only to seniors in the Depart-
ment of Civil and Environmental Engineering or in the Biosystems Engineering major.
Engineering properties of soil and their measure-

321 Introduction to Fluid Mechanics
Fall, Spring. 4(3-2) P: MTH 234 or MTH 254H or LBS 220 and (ME 221) and com-
pletion of Tier I writing requirement. R: Open only to juniors or seniors in the Department of Civil and Environmental Engineering or in the Biosystems Engineering major. Not open to students with credit in ME 332.

337 Civil Engineering Materials I
Fall, Spring. 3(3-3) P: MSM 211 or concurrently R: Open only to juniors or seniors in the Department of Civil and Environ-
mental Engineering.
Common civil engineering construction and paving materials: aggregates, inorganic cements, asphalts, concretes, wood and steel. Composition, structure, physical and mechanical properties, tests, and production mix design.

341 Transportation Engineering
Fall, Spring. 3(3-0) P: MTH 234 or concurrently or MTH 254H or concurrently or LBS 220 or concurrently and completion of Tier I writing requirement. RB: (STT 351): R: Open only to juniors or seniors in the Depart-
ment of Civil and Environmental Engineer-
ing or in the Urban and Regional Planning major. SA: CE 346
Overview of transportation system issues and prob-
lems. Fundamentals of highway design and opera-
tions. Planning and evaluation of transportation system alternatives.

375 Cost Engineering and Engineering Ethics
Fall. 3(3-0) R: Open only to juniors or sen-
iors in the College of Engineering. SA: CE 370
Cost engineering concepts and applications. Time value of money, alternative definitions and decision criteria. Equivalent cash flows. Cost benefit analysis, rate of return, depreciation. Moral foundations, engineering codes of ethics and case studies.

400 Structural Mechanics
Spring. 3(3-0) P: CE 305 R: Open only to seniors or graduate students in the Department of Civil and Environmental Engineering.
Matrix methods of structural analysis. Flexibility method. Direct stiffness method for plane structures. Elastic supports, inclined supports, member re-
leases and non-prismatic members. Application software.

405 Design of Steel Structures
Fall. 3(3-0) P: CE 305 R: Open only to seniors or graduate students in the Department of Civil and Environmental Engineering.
Design of steel beams, columns, tension members and connections. Stability and plastic strength.

406 Design of Concrete Structures
Spring. 3(3-0) P: CE 305 and CE 337 R: Open only to seniors or graduate students in the Department of Civil and En-
vironmental Engineering.
Design of reinforced concrete beams, slabs, col-
umns and footings.