CHINESE CHS

Department of Linguistics and Germanic, Slavic, Asian and African Languages
College of Arts and Letters

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

102 Elementary Chinese II
Spring. 5(5-0) P:M: (CHS 101) Not open to students with credit in CHS 105.
Further work on conversation, character writing, and comprehension, with increasing emphasis on vocabulary 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 contexts. Economic conditions and business culture in China.

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

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

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

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

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

401 Fourth-Year Chinese I
Fall. 3(3-0) P:M: (CHS 302) R:

Reading, discussion, and writing of advanced materials, including classical texts of broad cultural interest.

402 Fourth-Year Chinese II
Spring. 3(3-0) P:M: (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 enrollments for this course. R: Approval of department.
An individual research project supervised by a faculty 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:M: (MTH 114 or MTH 116 or MTH 124 or MTH 132 or MTH 152H or LBS 117 or LBS 118)
Application of surveying and error analysis to civil
engineering problems. Earth work. Calculations. Layout and
management of construction sites.

280 Introduction to Environmental Engineering
Fall, Spring. 3(3-0) P:M: (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:M: (MSM 211) R: Open only to juniors or seniors in the Department of Civil and Environmental Engineering.
Analysis and design of structural systems. Loads estimation and placement. Structural analysis theory. Manual and computer analysis methods and validation of results from computer analysis methods. Proportioning of structural members in steel and reinforced concrete. Applications including bridges and building frames.

312 Soil Mechanics
Fall, Spring. 4(3-3) P:M: (MSM 211) and completion 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.
Engineering properties of soil and their measurement. Effective-stress concept. Permeability and seepage. Compaction. Consolidation, shear strength and stress-strain behavior.

321 Introduction to Fluid Mechanics
Fall, Spring. 4(3-2) P:M: (MTH 234 or MTH 254H or LBS 220) and (ME 221) and completion 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.
Fluid properties, fluid statics, fluids in motion. Conservation of mass, energy and momentum. Dimensional analysis and similitude. Internal and external flows.Applications.

337 Civil Engineering Materials I
Fall, Spring. 4(3-3) P:M: (MSM 211 or concurrently) R: Open only to juniors or seniors in the Department of Civil and Environmental 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:M: (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 Department of Civil and Environmental Engineering or in the Urban and Regional Planning major. SA: CE 346
Overview of transportation system issues and problems. Fundamentals of highway design and operations. Planning and evaluation of transportation system alternatives.

375 Cost Engineering and Engineering Ethics
Fall. 3(3-0) R: Open only to juniors or seniors 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:M: (CE 305) R: Open only to juniors or 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 releases and non-prismatic members. Application software.

405 Design of Steel Structures
Fall. 3(3-0) P:M: (CE 305) R: Open only to juniors or 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:M: (CE 305 and CE 337) R: Open only to juniors or seniors or graduate students in the Department of Civil and Environmental Engineering.
Design of reinforced concrete beams, slabs, columns and footings.