REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN CONSTRUCTION SCIENCE

COLLEGE OF ARCHITECTURE
THE UNIVERSITY OF OKLAHOMA

| For Students Entering the Oklahoma State System for Higher Education: **Summer 2002 through Spring 2003** | **Credit Hours and Grade Averages Required**
Total Credit Hours. **129**
Minimum Upper-Division Hours Required **48**
Minimum OU Retention GPA. **2.30**
Minimum Combined Retention GPA **2.30**
Minimum GPA on all Required Coursework . . . . . **2.30** | Construction Science

0208B
Bachelor of Science in Construction Science |

Year	FIRST SEMESTER	Hours	SECOND SEMESTER	Hours
FRESHMAN	**CNS 1113**, Construction Industry **COMM 1113**, Principles of Communication **ENGL 1113**, Principles of English Composition (Core I) **HIST 1483 or 1493**, U.S. History (Core IV) OPEN ELECTIVE	3 3 3 3 3	**ENGL 1213**, Principles of English Composition (Core I) **MATH 1823**, Calculus I (Core I) **P SC 1113**, American Federal Government (Core III) NATURAL SCIENCE with lab —Approved Elective (Core II) **CNS 1212,** Computers in Construction	3 3 3 4 2
	TOTAL CREDIT HOURS	**15**	**TOTAL CREDIT HOURS**	**15**
SOPHOMORE	**ACCT 2113**, Fundamental Financial Accounting **ECON 1113**, Principles of Economics—Macro (Core III) **PHYS 2414**, General Physics for Life Sciences Majors **CNS 2113**, Construction Drawing **EN D 2413 or 2423**, History of the Built Environment I or II (Core IV)	3 3 4 3 3	**ACCT 2123**, Fundamental Managerial Accounting **ECON 1123**, Principles of Economics—Micro (Core III) **PHYS 2424**, General Physics for Life Sciences Majors **CNS 2713**, Construction Materials & Procedures **CNS 2913**, Construction Equipment and Methods	3 3 4 3 3
	TOTAL CREDIT HOURS	**16**	**TOTAL CREDIT HOURS**	**16**
	Admission to upper-division (3000- and 4000-level) courses requires an OU and combined retention GPA of 2.30.			
JUNIOR	**CNS 3103**, Construction Surveying **CNS 3113**, Construction Administration **CNS 3513**, Construction Cost Estimating **ARCH 3313**, Mechanics for Architects I **ECON 2843**, Elements of Statistics (Core I) **L S 3323**, Business Law	3 3 3 3 3 3	**B C 2813**, Business Communication **ARCH 3323**, Mechanics II **CNS 3153**, Legal Issues in Construction **CNS 3813**, Project Planning and Scheduling **CNS 3943**, Field Work UNDERSTANDING ARTISTIC FORMS ELECTIVE (Core IV)	3 3 3 3 3 3
	TOTAL CREDIT HOURS	**18**	**TOTAL CREDIT HOURS**	**18**
SENIOR	**ARCH 4243**, Environmental Controls for Buildings I **ARCH 4333**, Architectural Structures I **CNS 4123**, Construction Economics **CNS 4523**, Construction Cost Estimating II **CNS 4613**, Soils and Foundations **CNS 4991**, Construction Seminar	3 3 3 3 3 1	**ARCH 4253**, Environmental Control for Buildings II **ARCH 4343**, Architectural Structures II **MGT 3013**, Principles of Organization & Management **CNS 4993**, Construction Science Capstone (Capstone) NON-WESTERN CULTURE ELECTIVE (Core IV)—UPPER-DIVISION	3 3 3 3 3
	TOTAL CREDIT HOURS	**16**	**TOTAL CREDIT HOURS**	**15**
	A minimum grade of C is required in all CNS courses.			

University-Wide General Education Requirements (minimum 40 hours)

Courses designated as Core I, II, III or IV are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. Courses graded S/U or P/NP will not apply.

Core I	**Symbolic and Oral Communication (9–19 hours, 3–5 courses)** •English Composition–6 hours, 2 courses •Mathematics–3 hours, 1 course •Foreign Language–0–10 hours, 2 courses in the same language, (which can be met by successfully completing two years of the same foreign language in high school) •Other (courses such as communication, logic or public speaking)
Core II	**Natural Science (7 hours, 2 courses)** •Courses must be taken from different disciplines in the biological and/or physical sciences; one of which must include a laboratory.
Core III	**Social Science (6 hours, 2 courses)** •One course must be P SC 1113, "American Federal Government"
Core IV	**Humanities (12 hours, 4 courses)** •Understanding Artistic Forms–3 hours, 1 course •Western Civilization and Culture–6 hours, 2 courses, including HIST 1483 or HIST 1493 •Non-Western Cultures–3 hours, 1 course
Senior Capstone Experience (3 hours, 1 course)	

COURSES IN ACCOUNTING (ACCT)

2113 Fundamental Financial Accounting. Basic principles of financial accounting. Emphasis on the preparation and use of the income statement, balance sheet and statement of funds flow for corporations. Coverage includes the analysis and recording of transactions involving cash, inventories, fixed assets, bonds and capital stock as well as closing, adjusting and reversing entries for revenue and expense items. (F, Sp, Su)

2123 Fundamental Managerial Accounting. Prerequisite: 2113. Introduction to managerial accounting. Analysis of cost behavior and the use of this knowledge for both short- and long-term decision. An introduction to budgeting and the accumulation of product costs for planning and performance evaluation. Specific coverage includes cost-volume-profit analysis, capital budgeting, allocations, variances from standard costs and the measurement of divisional performance. (F, Sp, Su)

COURSES IN ARCHITECTURE (ARCH)

3313 Mechanics for Architects I. Prerequisite: Mathematics 1812, Physics 1114 or 2514. Principles of architectural structures in tension and compression; resultants and equilibrium force systems; section properties; stress and strain; tension and compression members; trusses and pin connections. (F, Sp, Su)

3323 Mechanics for Architects II. Prerequisite: 3313, and Mathematics 1743 or 1823. Principles of architectural structures in bending; shear and moment diagrams; bending members; columns and walls; selection of simple members in wood and steel. (F, Sp, Su)

4243 Environmental Control for Buildings I. Prerequisite: 3223 and program admission. Introduction to psychrometrics, heat transmission in building materials, building heat losses and cooling loads and passive solar heating. Survey of air conditioning systems, design of systems for control of the thermal environment in buildings and influences of fenestration, shading and orientation. (F)

4253 Environmental Control for Buildings II. Prerequisite: 3223 and program admission. Relationship of lighting quality to human performance; principles of illumination and electrical power distribution systems; electrical code requirements and automatic control; introduction to piping design, alarm systems, lift controls, architectural acoustics and noise control. (Sp)

4333 Architectural Structures I. Prerequisite: 3323 and program admission. Structural design of simple building frameworks; loads; simple structural systems for gravity, lateral, and seismic loads in steel, wood, and masonry; connections; structural detailing. (F, Sp, Su)

4343 Architectural Structures II. Prerequisite: 3323 and program admission. Structural design of continuous building frameworks; loads; concrete structural systems; foundations; connections; structural detailing. (F, Su)

COURSES IN BUSINESS COMMUNICATION (B C)

2813 Business Communication. Prerequisite: English 1113 and 1213 or equivalent, Communication 1113 and sophomore standing. This course is writing intensive. Focuses on oral and written communication as well as critical thinking skills. Also covers persuasive strategies and moves sequentially from analytical skills to composition strategies to written and oral reports. (F, Sp, Su)

COURSES IN CONSTRUCTION SCIENCE (CNS)

1113 Construction Industry: Impact on Society. Prerequisite: none. Analysis of the cultural context of construction, emphasizing its centrality in the evolution and expansion of the built environment. The primary focus will be on the human elements and issues that have impacted the industry and society in both historical and present contexts. (F)

1212 Computers in Construction. An introductory course providing the student with basic computer application knowledge. Familiarizes student with current applications of spreadsheet, presentation, and AutoCad software for use in the construction industry. (Sp)

2113 Construction Drawings. Prerequisite: 1212. Provides students with the knowledge and skill to interpret, explain, quantify, and use working drawings to bid, construct, and inspect construction projects. Understanding and quantifying working drawings permits the construction manager to interpret the intent of the designer and to communicate this to the field personnel. (F)

2713 Construction Materials and Procedures. Prerequisite: 2113. Detailed survey of materials, methods, and procedures used in a variety of building types. Students will also gain an understanding of the basis for choosing different materials and methods. (Sp)

2913 Construction Equipment and Methods. Prerequisite: 1212. Performance, relative cost, depreciation and use of equipment in construction. Class reports are required on construction equipment. Field trips are made to view and evaluate construction equipment. (Sp)

3103 Construction Surveying. Prerequisite: 2713. The practical application of taping, differential, profile, trigonometric leveling, angle measurement, traversing, and other instrument layout techniques for vertical and horizontal construction project control and layout. (F)

3113 Construction Administration. Prerequisite: 2713, Communications 1113. Introduction to construction project administration procedures and necessary documentation; including simplified project accounting, contract administration, project permitting, daily administration, field documentation, and progress and cost reporting. (F)

3153 Legal Issues in Construction. Prerequisite: 3113, Legal Studies 3323. An examination of current construction law as it pertains to the day-to-day management of the construction contract. Includes legal ramifications of construction bidding, contracts, changes, delays and dispute resolution. Emphasis is on the reduction of dispute through knowledge. (Sp)

3513 Cost Estimating I. Prerequisite: 2113, 2713. Familiarizes students with the basic foundations of the estimating process including quantity surveying, the organization of the estimate, and visualization of the project. Labor costs as well as overhead and profit are also introduced. (F, Sp)

3813 Project Planning and Scheduling. Prerequisite: 3113, 3513. Application of scheduling techniques in an integrated construction planning, scheduling and control system. Includes theory, options, legal implications and practice. Students plan the construction of their projects from estimating and use microcomputer software to schedule and set up control systems for the projects. Laboratory (Sp)

3943 Field Work. Prerequisite: junior standing and permission. Utilize a construction work experience to prepare for construction management functions. Student is responsible for finding the construction-related activity and proposing a work-related project. Written and oral presentation is required. (F, Sp, Su)

4123 Construction Economics. Prerequisite: 3813. Learn to work with the time value of money, present value, and sensitivity analysis. Develop both graphic and computer-based cash flow models of typical income-producing construction projects. (F)

4523 Construction Cost Estimating II. Prerequisite: 3513, 3813, and Business Communication 2813. Continuation of Estimating I. Estimating skills learned in Estimating I will be reinforced. Emphasis on pricing work, sub-contracting and bidding strategies. Introduction to cost estimating software. (Sp)

4613 Soils and Foundations. Prerequisite: Architecture 3523. Soil identification and classification. Engineering properties of soils. Spread footings and foundation design. Piles and caissons. Retaining wall design. Settlement of foundations. Observation of field and laboratory tests. Practical applications emphasized. (F)

4991 Construction Seminar. Prerequisite: 3813. An overview of the entry-level management positions in the construction industry through the use of guest speakers, leadership training programs, and attendance at professional organizational meetings. (F)

4993 Construction Science Capstone. Prerequisite: 4523 and senior standing. A capstone course integrating all aspects of the construction project management process. Class interaction requires participants to utilize and extend knowledge of areas of expertise used by construction managers. (Sp)

COURSES IN ECONOMICS (ECON)

1113 Principles of Economics-Macro. The functioning and current problems of the aggregate economy: determination and analysis of national income, employment, inflation and stabilization; money and banking, monetary and fiscal policy; and aspects of international interdependence. **Laboratory** (F, Sp, Su)

1123 Principles of Economics-Micro. Goals, incentives and allocation of resources resulting from economic behavior with applications and illustrations from current issues: operation of markets for goods, services and factors of production; the behavior of firms and industries in different types of competition and income distribution. **Laboratory** (F, Sp, Su)

2843 Elements of Statistics. Prerequisite: Mathematics 1503 or equivalent. Basic statistical techniques emphasizing business and economic applications. Topics covered include data summary techniques, elementary probability theory, estimation, hypothesis testing, simple regression, time-series and index numbers. **Laboratory** (F, Sp, Su)

COURSES IN ENVIRONMENTAL DESIGN (EN D)

2413 History of the Built Environment I. A survey of the built environment from the first human presence through the Middle Ages, stressing the integral nature of the built environment and the cultural milieu. Buildings, urban patterns and ideas will be emphasized. Examples will range from recognized standards to the commonplace. (F, Sp)

2423 History of the Built Environment II. Prerequisite: 2413. A continuation of 2413 from the Middle Ages through the early twentieth century. (F, Sp)

COURSES IN LEGAL STUDIES (L S)

3323 Legal Environment of Business. Prerequisite: junior standing. The legal environment of business organizations with ethical considerations and the social and political influences affecting such environments. (F, Sp, Su)

COURSES IN MANAGEMENT (MGT)

3013 Principles of Organization and Management. Prerequisite: junior standing. An introductory course presenting the basic concepts and practices of management, both private and public. Historical development of management; basic definitions and philosophy; fundamental managerial functions, including planning, organizing, staffing, directing, and controlling; a survey approach to quantification in organizational life; current trends in management; possible future developments in organization and administration. (F, Sp, Su)

COURSES IN PHYSICS (PHYS)

2414 General Physics for Life Science Oriented Majors. Prerequisite: Mathematics 1523 or 1743. Not open to students with credit in 1205 or 2514. Kinematics and dynamics of particles and rigid bodies, gravitation, equilibrium, momentum, energy, static and flowing fluids, kinetic theory, heat and thermodynamics, vibrations, waves and sound. (F, Sp, Su)

2424 General Physics for Life Science Oriented Majors. Prerequisite: 2414. Not open to students with credit in 1215 or 2524. Electric charge, electric field, electric potential, energy, DC and AC currents, magnetic fields, electromagnetic induction, geometrical optics, wave nature of light, optical instruments, early quantum theory, models of the atom, the nucleus, radioactivity, nuclear reactions and nuclear energy. (F, Sp, Su)