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 2007 through Spring 2008**

Credit Hours and Grade Average Requirements

Total Credit Hours	**129**
Minimum Upper-Division Hours Required	**48**
Minimum Retention/Graduation Grade Point Averages:	
Minimum OU Retention GPA	**2.50**
Minimum Combined Retention GPA	**2.50**
Minimum GPA on all Required Professional Courses	**2.50**

Construction Science

0208B

Bachelor of Science in Construction Science

OU encourages students to complete at least 32-33 hours of applicable coursework each year to have the opportunity to graduate in four years.

Year	FIRST SEMESTER	Hours	SECOND SEMESTER	Hours
FRESHMAN	**CNS 1113**, Construction Industry	3	**ENGL 1213**, Principles of English Composition (Core I), **or**	3
	COMM 1113, Principles of Communication	3	**EXPO 1213**, Expository Writing (Core I)	
	ENGL 1113, Principles of English Composition (Core I)	3	**MATH 1823**, Calculus I (Core I)	3
	HIST 1483 or 1493, U.S. History (Core IV)	3	**P SC 1113**, American Federal Government (Core III)	3
	OPEN ELECTIVE	3	**GEOL 1114**, Physical Geology (Core II)	4
			***CNS 1212,** Computers in Construction	2
	TOTAL CREDIT HOURS	**15**	**TOTAL CREDIT HOURS**	**15**
SOPHOMORE	**ACCT 2113**, Fundamental Financial Accounting	3	**ACCT 2123**, Fundamental Managerial Accounting	3
	ECON 1113, Principles of Economics—Macro (Core III)	3	**B C 2813**, Business Communication	3
	PHYS 1311, General Physics Lab I (Core II)	1	**ECON 1123**, Principles of Economics—Micro (Core III)	3
	PHYS 2414, General Physics for Life Sciences Majors (Core II)	4	**CNS 2813**, Construction Documents	3
	CNS 2713, Construction Materials & Procedures	3	**CNS 2913**, Construction Equipment and Methods	3
	ARCH 2243 or 2343, History of the Built Environment I or II (Core IV)	3		
	TOTAL CREDIT HOURS	**17**	**TOTAL CREDIT HOURS**	**15**

A minimum 2.50 OU and combined retention GPA is required for admission to Construction Science program. Admission is limited to the top 25 GPAs based on all courses listed above. All courses listed above must be completed before applying for admission to the junior year.

JUNIOR	**CNS 3103**, Construction Surveying	3	**CNS 3153**, Legal Issues in Construction	3
	CNS 3113, Project Construction Administration	3	**CNS 3813**, Project Planning and Scheduling	3
	CNS 3513, Construction Cost Estimating	3	**CNS 3943**, Field Work	3
	ECON 2843, Elements of Statistics (Core I)	3	**ARCH 3633**, Architectural Structures II	3
	L S 3323, Business Law	3	UNDERSTANDING ARTISTIC FORMS ELECTIVE (Core IV)	3
	ARCH 2233, Architectural Structures I	3	**PHIL 3273**, Ethics and Business (Core IV)	3
	TOTAL CREDIT HOURS	**18**	**TOTAL CREDIT HOURS**	**18**
SENIOR	**ARCH 3433,** Environmental Controls I	3	**ARCH 4833,** Environmental Controls II	3
	CNS 4123, Construction Economics	3	**MGT 3013**, Principles of Organization & Management	3
	CNS 4523, Construction Cost Estimating II	3	**CNS 4993**, Construction Science Capstone (Capstone)	3
	CNS 4613, Soils and Foundations	3		
	CNS 4881, Construction Safety Management	1	Construction Science Elective (upper-division)	3
	ARCH 4733, Architectural Structures III	3	NON-WESTERN CULTURE ELECTIVE (Core IV)—UPPER-DIVISION	3
	TOTAL CREDIT HOURS	**16**	**TOTAL CREDIT HOURS**	**15**

*This course fulfills the Computer Literacy Requirement for graduation as required by the Oklahoma State Regents for Higher Education.

A minimum grade of C is required in all CNS courses.

CNS students are strongly encouraged to obtain a minor in Architecture, Business, or Communication.

University-Wide General Education Requirements (minimum 40 hours)

Courses designated as Core I, II, III, IV, or Capstone 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. Prerequisite: Business Administration 1001 or concurrent enrollment. Basic principles of financial accounting. Emphasis on the preparation and use of the income statement, balance sheet and statement of funds flow for corpora-tions. 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)

2233 Architectural Structures I. Prerequisite: Architecture major and completion of 1133, 1143, 1153, 1253, Physics 1114 and Mathematics 1823, or Construction Science major and completion of Physics 2414, 2424 and Mathematics 1823. Concepts, knowledge and methods of statics and strengths of materials for architects and constructors. (F)

2243 History of the Built Environment I. Prerequisite: majors only or permission of instructor. A theological investigation of the cultural, historical, political and aesthetic values of diverse Western and non-western cultures that result in significant built environments through the 16th century. Buildings, urbanism, theories, and cultural context will be emphasized. (F) [IV-WC]

2343 History of the Built Environment II. Prerequisite: majors only or permission of instructor. Overview of built artifacts in Europe and the Americas since 1750. Emphasis on the formal, philosophical, social, technical and economic context of the projects discussed, as well as their later reinterpretations. (Sp) [IV-WC]

3433 Environmental Controls I. Prerequisite: Architecture major and completion of 2233, 2243, 2333, 2343, 2354, 2454; or Construction Science major and completion of 3633. Introduction to psychrometrics, heat transmission in buildings, heating, air conditioning and ventilation, solar heat gain, passive solar conditioning, plumbing and fire protection. (F)

3633 Architectural Structures II. Prerequisite: Architecture major and completion of 2233, 2243, 2354, 2454, and full program admission, or Construction Science major and completion of 2233. Extension of the study of architectural structures through structural design of simple building frameworks; simple structural systems for gravity, lateral and seismic loads in steel, wood and masonry; basic structural detailing. **Laboratory** (Sp)

4733 Architectural Structures III. Prerequisite: Architecture majors and completion of 3433, 3443, 3533, 3554, 3633, 3654, or Construction Science major and completion of 3633. Extension of the study of architectural structures through structural design of continuous building frameworks; loads, concrete structural systems, foundations, connections and structural detailing. **Laboratory** (F)

4833 Environmental Controls II. Prerequisite: Architecture major and completion of 3433, 3443, 3533, 3554, 3633, 3654, orConstruction Science major and completion of 3433 and 3633. Introduction to acoustics, electrical design, lighting design, alarm and life safety systems. (Sp)

COURSES IN BUSINESS COMMUNICATION (B C)

2813 Business Communication. Prerequisite: English 1113 and 1213 or equivalent, Communication 1113 or 2613 and Business Administration 1001 or concurrent enrollment. This course is writing intensive. Focuses on oral and written communication as well as critical thinking. 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)

2713 Construction Materials and Procedures. Prerequisite: 1212. 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. (F)

2813 Construction Documents. Prerequisite: 2713. 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. (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 Project Construction Administration. Prerequisite: 2813. 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: 2713, 2813. 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 3633. 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)

4881 Construction Safety Management. Prerequisite: junior standing in Construction Science major. 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. Provides students with an introduction to construction site and associated recordkeeping and reporting. (F)

4993 Construction Science Capstone. Prerequisite: all required CNS courses through fall semester of the senior year. A capstone course integrating all aspects of the construction project manage-ment process. Class interaction requires participants to utilize and extend knowledge of areas of expertise used by construction managers. (Sp) [V]

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) [III-SS]

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) [III-SS]

2843 Elements of Statistics. Prerequisite: Mathematics 1443 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) [I-M]

COURSES IN GEOLOGY (GEOL)

1114 Physical Geology for Science and Engineering Majors. Prerequisite: equivalent knowledge of high school chemistry, algebra and trigonometry. Laboratory included. Plate tectonics, the makeup of continents and mountain building. Heat flow, magnetism, gravity, rock deformation, earthquakes and the earth's interior. Surface processes including weathering, erosion, transport and deposition. Landforms, rivers, groundwater, glaciers, ocean processes, and volcanoes. Minerals and rocks. Application of geology to land-use, groundwater, mineral and fossil fuel exploration. **Laboratory** (F, Sp) [II-LAB]

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 PHILOSOPHY (PHIL)

3273 Ethics and Business. Prerequisite: Six hours of philosophy or junior standing. A study of how ethics illuminates business activities. Topics include: the philosophical bases of capitalism; the legitimacy of the profit motive; virtue and the marketplace; corporate responsibility; government regulation; the marketplace and the environment; the ethics of advertising; employee privacy; and the challenges posed by the developing information age. (Irreg.) [IV-WC]

COURSES IN PHYSICS (PHYS)

1311 General Physics Lab I. Corequisite: 2414 or 2514. Experiments in basic law of mechanics and thermodynamics. (F, Sp, Su) [II-LAB]

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) [II-NL]