



Spring Semester 2005

# Graduate Institute

## Member Universities

### Degree Programs

Louisiana State University

Engineering Sciences  
Environmental Studies  
Experimental Statistics

Mississippi State University

Civil Engineering  
Environmental  
Geotechnical  
Hydraulics  
Structural

Computational Engineering  
Engineering Management  
Electrical Engineering  
Industrial Engineering  
Computer Science and  
Engineering  
Mathematics and Statistics  
Business

Texas A&M University

Ocean Engineering  
Oceanography

### Inquiries and Questions

Director, Graduate Institute  
U.S. Army Engineer Research  
and Development Center  
3909 Halls Ferry Road  
Vicksburg, MS  
39180-6199  
(601) 634-4279



## The Graduate Institute

The Graduate Institute is an association of universities and the U.S. Army Engineer Research and Development Center (ERDC) through which academic credit and graduate degrees can be earned from Member Universities that offer programs at ERDC. The Institute was established in 1986 and functions through joint agreement between ERDC and Member Universities (Louisiana State University, Mississippi State University, and Texas A&M University). Academic oversight is given by the Graduate Institute Administrative Board, a group composed of a representative from ERDC and each Member University.

## The Graduate Program

Under the program, you may enroll as either a nondegree student or in a graduate degree program at a Member University.

If you plan a degree, it will be necessary to apply for admission from the Member University offering the program desired. Completed admission forms should be submitted to the University through the U.S. Army Engineer Research and Development Center, ATTN: Director, Graduate Institute, 3909 Halls Ferry Road, Vicksburg MS 39180-6199. Application forms can be obtained from the Director's office or from the Admissions Office at the University. Please note that if you have been accepted in selected out-of-state programs, you may be eligible to enroll on an in-state tuition basis through the Academic Common Market.

Upon admission as a degree candidate into a graduate program, it will be necessary to form a graduate committee to advise and work with you in the selection of a thesis topic and the selection of courses. The graduate committee will consist of members from the university graduate faculty and a member from ERDC who has adjunct, visiting, or affiliate faculty status. The committee will be chaired by a member of the graduate faculty appointed by the head of the major department. The Institute Director will assist you in contacting and making arrangements to form your graduate committee.

In addition to providing courses to meet degree requirements, the Institute also offers graduate credits in other scientific disciplines.

*The Graduate Institute does not discriminate against anyone because of age, creed, color, national origin, race, religion, sex, or handicap.*

# Courses: Spring Semester 2005

## Mississippi State University

### Civil Engineering

**CE 6513. Engineering Hydrology.** (3). Instr. Dr. B. Johnson, ERDC. Hydrologic processes; rainfall-runoff analysis; groundwater flow; frequency analysis; hydrologic design.

M, W, & F, 8:00-8:50 AM, Classroom No. 3, Bldg. 3072.

**CE 8990. Special Topics in Civil Engineering: Tidal Hydraulics.** (3). Instr. Dr. W. McAnalley, MSU. Bay and estuarine hydrodynamics, transport, and engineering. Unsteady, non-uniform stratified flows, tides, currents, estuarine circulation, salinity intrusion and sedimentation, and engineering analyses and works.

Tu & Th, 11:00-12:15 PM, Classroom No. 3, Bldg. 3072.

**CE 8990. Special Topics in Civil Engineering: Behavior, Analysis and Properties of Concrete.** (3). Instr. Dr. D. Smith, ERDC. Study of the constituents, behavior, and properties of fresh and hardened concrete. Properties of hydraulic cements and mineral aggregates and their interactions in concrete. Physicochemical properties of cements and their hydration. Nature of hardened cement paste. Properties of aggregates. Workability, strength, shrinkage, creep, and fracture of concrete. Durability, freezing and thawing, air-entertainment, reactions of aggregates, chemical attack. Influence of microstructure on engineering properties of concrete. Modifications through admixtures.

Th, 3:30-6:00 PM, Classroom No. 2, Bldg. 3072.

### Engineering Mechanics

**EM 2433. Engineering Mechanics II.** (3). Instr. Dr. D. Smith, ERDC. Kinematics of particles and rigid bodies, kinetics of particles and rigid bodies using force-mass-acceleration, energy, momentum methods. TBA, Classroom No. TBA, Bldg. 3072.

**EM 3313. Fluid Mechanics.** (3). Instr. Dr. R. Stockstill, ERDC. Fluid statics; analysis of fluid motion using the continuity, momentum and energy relationships; introduction to viscous flows.

TBA, Classroom No. TBA, Bldg. 3072

**EM 8113. Theory of Continuous Media.** (3). Instr. Dr. John Peters, ERDC. An introduction to the general theory of continuous media and its application to the theories of elasticity and fluid mechanics.

Tu & Th, 3:30-5:00 PM, Classroom No. 4, Bldg. 3072.

### Electrical and Computer Engineering

**ECE 6243. Introduction to Physical Electronics.** (3). Instr. Dr. R. Winton, MSU.

Introduction to quantum mechanics and solid state physics. Physical principles of junctions, bipolar transistors, field effect transistors. Applications include electro-optics, integrated circuits, gaseous electronics.

Tu & Th, 8:00-9:15 AM, Classroom No. 4, Bldg. 3072.

**ECE 8013. Switching Theory.** (3). Instr. Dr. J. Harden, MSU.

Theory of combinational and sequential (synchronous and fundamental-mode) circuits with emphasis on performance, robustness, cost and testability objectives.

Tu & Th, 3:30-4:45 PM, Classroom No. 3, Bldg. 3072.

### Geosciences

**GG 6153. Engineering Geology.** (3). Instr. Dr. J. May, ERDC.

The purpose of this course is to introduce the history, definitions, methods and applications of engineering geology to the types of fixed engineering projects likely to be addressed in practice. The study should be able to understand economy of engineering project through their life cycle from conception through design, construction, operation, and decommissioning. This involves sufficient understanding of the opportunities, and hazards from the earth science perspective. Emphasis will be placed on developing conceptual skills in this course, rather than the learning of technique.

Tu, 3:30-6:30 PM, Classroom No. 1, Bldg. 3072.

### Industrial Engineering

**IE 6513. Engineering Administration.** (3). Instr. S. Bullington, MSU. Study of problems confronting the engineering manager. Includes: Organization and communication theory, internal and external relationships and responsibilities, and designing and implementing managerial systems.

Tu & Th, 9:30-10:45 AM, Classroom No. 3, Bldg. 3072

**IE 6773. Systems Simulation I.** (3). Instr. Dr. A. Greenwood, MSU. Introduction to mathematical techniques of queuing and the principles of stochastic simulation. The statistics of simulation. Use of C programming and special-purpose simulation languages.

Tu & Th, 12:30-1:45 PM, Classroom No. 3, Bldg. 3072.

**IE 8990. Special Topics in Digital Human Modeling.** (3). Instr. Dr. V. Duffy, MSU. The course will focus on broad aspects of Digital Human Modeling (DHM) including: biomechanics and anthropometry, accessibility and inclusive design, motion and posture predictions, motion capture, human behavior and cognitive modeling, configuration of ergonomics analysis and design support tools, statistical inferences and their impact on future design, economic justification based on predictions, verification and validation.

Tu & Th, 2:00-3:15 PM, Classroom No. 3, Bldg. 3072.

### Mathematics

**MA 6313. Numerical Analysis I.** (3). Instr. Dr. M. Christos, MSU. Matrix operations; error analysis; norms of vectors and matrices; transformations; matrix functions; numerical solutions of systems of linear equations; stability; matrix inversion; eigen value problems; approximations. (Prereq.: CS 1213 or equivalent, MA 3113, and MA 2743).

Fr, 2:30-5:30 PM, Classroom No. 1, Bldg. 3072.

### Computer Science and Engineering\*

**CSE 6283. Software Testing and Quality Assurance.** (3). Instr. Dr. D. Dampier, MSU.

Topics include methods of testing, verification and validation, quality assurance processes and techniques, methods and types of testing and ISO 9000/SEI CMM process evaluation.

M & W, 3:00-4:30 PM, Classroom No. 2, Bldg. 3072.

**CSE 6633. Artificial Intelligence.** (3). Instr. Dr. C. Butler, ERDC. Study of the computer context with human thought processes. Heuristic programming; search strategies; knowledge representation; natural language understanding; perception; learning.

M & W, 3:30-5:00 PM, Classroom No. 1, Bldg. 3072.

**CSE 8813. Formal Languages and Automata Theory.** (3). Instr. Dr. W. Ward, ERDC. Alphabets, languages, grammars; finite state machines, regular grammars; push-down automata, context-free languages; linear bounded automata, context-sensitive languages; Turing machines; unsolvability; closure properties languages.

Tu & Th, 4:00-7:00 PM, Classroom No. 1, Bldg. 3072.

### Business

#### Foundation Courses

**ACC 8303. Survey of Accounting.** (3). Instr. Dr. N. Addy, MSU. Introduction to financial and managerial accounting: including accounting process, cash flow, elements, business organizations, analysis of management reports and financial statements, cost planning and control.

MSU Internet. **TUITION: \$684.75.**

**BQA 8443. Statical Analysis of Business Decision Making.** (3).

Instr. Dr. J. Sullivan, MSU.

Review of descriptive statistics, parametric inference procedures, analysis of variance, regression, nonparametric methods; business problem formulation for computer analysis using statistical packages.

MSU Internet. **TUITION: \$684.75.**

**MGT 8063. Survey of Management.** (3). Instr. Staff, MSU. Survey of management principles and techniques including: objective, policies, functions, leadership organization, and production control procedures and systems as applied to all fields of business. MSU Internet. **TUITION: \$684.75.**

## Core Courses

**EC 8103. Economics for Managers.** (3). Instr. Dr. J. Rezek, MSU. Primarily for masters-level candidates. Exposition of the fundamental theoretical and analytical tools of economics used by business managers engaged in decision making. M, 6:00-9:00 PM, Classroom No. 3, Bldg. 3072. VTC or MSU Internet. 10 January 2004 - 5 May 2005. **TUITION: \$1,062.00**

**FIN 8112. Capital Acquisition and Allocation.** (2). Instr. Dr. W. Kelly, MSU. Integration of risk and return concepts, capital structure, cashflow estimating, the capital acquisition process and capital budgeting into one framework. Th, 6:00 - 10:00 PM, Classroom No. 3, Bldg. 3072. **TUITION: \$708.00.**

## Term 1 (10 Jan 04 – 5 May 05)

**MKT 8132. Business Research.** (3). Instr. Dr. R. Taylor, MSU. MSU Internet. **TUITION: \$708.00.**

## Term 2 (7 Mar 05 – 5 May 05)

**MGT 8112. Leadership Skills for Managerial Behavior.** (2). Instr. Dr. B. Spencer, MSU. Survey of major behavioral skills used by managers to help them understand and influence by managers to help them understand and influence behavior in an organizational setting. MSU Internet. **TUITION: \$708.00.**

**FIN 8122. Corporate Liquidity Analysis.** (2). Instr. Dr. W. Kelly, MSU. The role working capital plays in the viability of the firm and the financial management tools used to analyze and manage the firm's liquidity position. Th, 6:00-10:00 PM, Classroom No. 2, Bldg. 3072. (VTC). **TUITION: \$708.00.**

# Louisiana State University

## Environmental Studies

**ENVS 7042. Environmental Conflict Resolution.** (3). Instr. Dr. M. Reams, LSU. Practical approaches and techniques commonly used to mediate environmental conflicts and facilitate participatory group decision making among stakeholders. M & W, 1:30-3:00 PM, Classroom No. 4, Bldg. 3072.

## Experimental Statistics

**EXST 7087. Statistical Methods II.** (3). Instr. Dr. J. Geaghan, LSU. An in-depth coverage to practical applications in multiple regression, analysis of variance, and the analysis of covariance. Additional topics, such as logistic regression, are often examined as well. Tu & Th, 9:10-10:30 AM, Classroom No. 4, Bldg. 3072.

**EXST 7024. Population Statistics I.** (3). Instr. Dr. B. Moser, LSU. Deals with ecological and environmental sampling techniques including line transects, line intercepts, and capture-recapture sampling, distributions and basic analysis of environmental data, Monte Carlo techniques as applied to ecological problems and spatial point pattern and spatial auto-correlation analysis methods. Additional techniques, such as home-range models, may also be covered as time permits. (Prereq.: EXST 7005.) M, 8:40-9:30 AM, Classroom No. 4, WEB BASED, Bldg. 3072.

# Texas A&M University

## Ocean Engineering

**OCEN 685. Problems.** (1-6). Research for thesis or dissertation. **OCEN 691. Research.** (1-6). Research for thesis or dissertation.

## Calendar: Spring Semester 2005

10 Jan 05	Semester begins for MSU.
12 Jan 05	Semester begins for ULM.
18 Jan 05	Semester begins for LSU and TAMU.
24 Jan 05	Last day to drop a class from MSU.
25 Jan 05	Last day to drop a class from LSU and TAMU without a grade.
5 Apr 05	Last day to withdraw from TAMU.
7 Apr 05	Last day to drop a class or withdraw from ULM.
8 Apr 05	Last day to withdraw from LSU.
15 Apr 05	Last day to withdraw from MSU.
6 May 05	Semester ends for MSU.
10 May 05	Semester ends for ULM.
11 May 05	Semester ends for TAMU.
14 May 05	Semester ends for LSU.

## Registration

Registration will be held each week, 8:00 a.m. — 4:30 p.m., **1-17 December 2004 and 3-7 January 2005.**

## Tuition and Fees

MSU — \$684.75/3 SCH (Except as noted for MBA and undergraduate classes)  
LSU — \$690.00/3 SCH (Subject to change)  
TAMU — \$1,550.00/3 SCH (Subject to change)  
ULM — \$451.25/3 SCH (Subject to change)  
Tuition and fees are payable at registration by check, money order, or a copy of an **approved** purchase request (DD Form 1556 for Corps employees).

## New Students and Readmit Students

**New students** enrolling in courses from MSU must have a copy of their transcripts mailed to the Graduate Institute prior to registration and should register by 10 December to ensure admission to the university before the semester begins. Students who have not been enrolled in classes at MSU for one semester (Fall or Spring) or more should also register by 10 December to ensure timely readmission to the university. **New students** enrolling in courses offered by LSU and TAMU will have to pay an application fee of \$25 and \$50, respectively.

## Withdrawals and Refunds

Requests to withdraw from a course must be submitted in writing to the Director, Graduate Institute. Refunds, if applicable, will be by the university according to their policy.

## Textbooks

Books can be purchased through the colleges= bookstore or any retail source. A list of books and sources will be provided at registration.

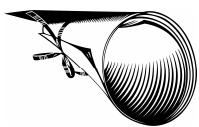
# \*University of Louisiana at Monroe

*\*The Administrative Board has approved the Graduate Institute's request to offer computer science undergraduate prerequisite courses from the Department of Computer Science, Mathematics, and Physics, University of Louisiana at Monroe.*

**CSCI 200. Introduction to Computer Science.** (3). Instr. Dr. L. Smith, ULM.

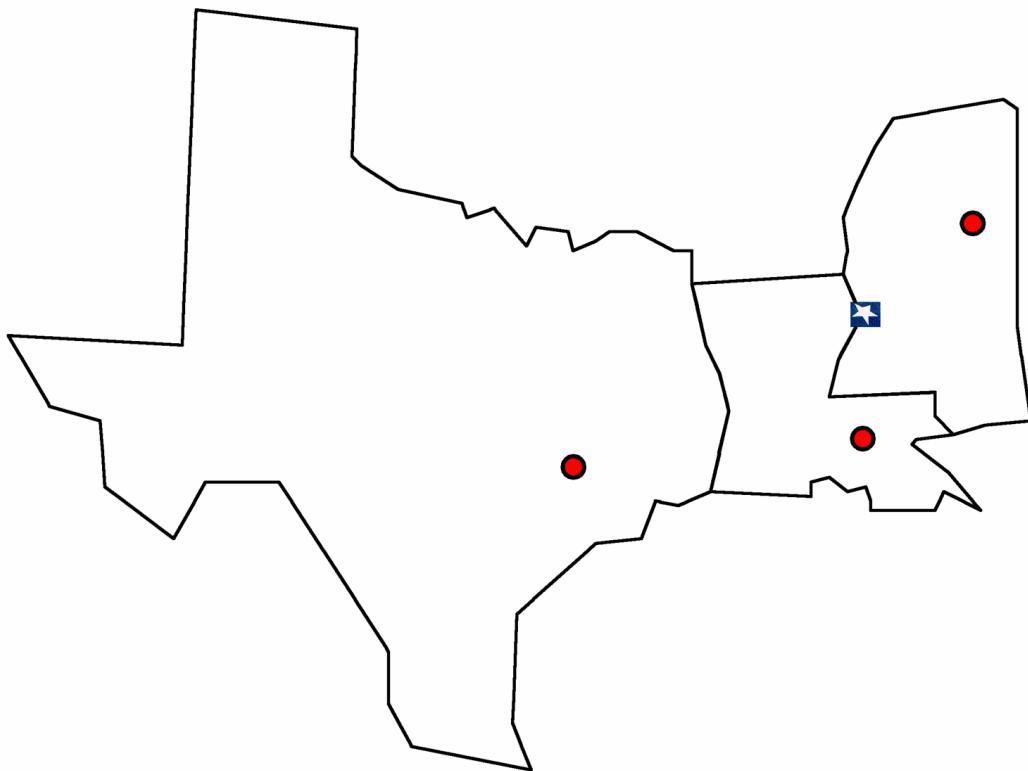
An introduction to algorithms and programming, with an emphasis on the basic design, implementation and testing of solutions to numerical and non-numerical problems. Language: Java. M & W, 11:00-12:50 PM, Classroom No. 2, Bldg. 3072. (VTC).

**CSCI 203. Intermedia Programming.** (3). Instr. Dr. J. Cordova, ULM. A continuation of CSCI 200, with increased emphasis on program design (including structured and object oriented techniques, data structures, and algorithms). Language: Java. M, W, & F, 9:00-9:50 AM, Classroom No. 2, Bldg. 3072. (VTC).



CEERD-ZA-V-E  
OFFICIAL BUSINESS

-----  
VICKSBURG, MISSISSIPPI 39180-6199  
3909 HALLS FERRY ROAD  
WATERWAYS EXPERIMENT STATION  
CORPS OF ENGINEERS  
U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER  
DEPARTMENT OF THE ARMY



**US Army Corps  
of Engineers®**  
Engineer Research and  
Development Center