departmentally based graduate programs. The Ph.D. training program is designed to provide rigorous integrated training at the interface of the chemical and/or physical sciences and the biological sciences. The course work and research components of the program prepare students for research careers in which they are able to bring state-of-the-art tools of the modern chemical and physical sciences to bear on cutting-edge biological problems.

The curriculum prepares students for research careers at the chemistry-biology interface, in imaging sciences, in structural biology, or in molecular biophysics. Research opportunities are available in a broad range of areas including: biological mass spectroscopy, biomagnetics and nonlinear dynamics, computational biology and molecular modeling, protein-protein interactions, NMR and EPR, cryo-Electron Microscopy, chemical biology, fluorescence spectroscopy and microscopy, in vivo imaging, protein-nucleic acid interactions, structural biology, nanocrystals, macromolecular structure and dynamics, mechanistic enzymology, proteomics, molecular toxicology, and mathematical modeling of biological systems.

Course descriptions begin on page 86.

Chemistry

CHAIR David W. Wright
DIRECTOR OF GRADUATE STUDIES Carmelo J. Rizzo
PROFESSORS Emeriti Robert V. Dilts, Larry C. Hall, Thomas M. Harris, David M. Hercules, Melvin D. Joesten, Mark J. Jones, Joel Tellinghuisen, David L. Tuleen, David J. Wilson
RESEARCH PROFESSORS Thomas M. Harris, David M. Hercules, Charles M. Lukehart, Ned A. Porter
ADJOINT PROFESSOR Ludia Smentek
ASSOCIATE PROFESSORS Brian O. Bachmann, Eva M. Harth, Piotr Kaszniski, Jens Meier
RESEARCH ASSOCIATE PROFESSORS
Markus W. Voelter, Huiyong Yin
ADJOINT ASSOCIATE PROFESSOR Norm K. Duniak
ASSOCIATE PROFESSORS Joshua T. Moore
ASSISTANT PROFESSORS Janet E. Macdonald, Steven D. Townsend
ADJOINT ASSISTANT PROFESSORS Natalie Y. Arnett, Andrienne C. Friedl

DEGREES OFFERED: Master of Science, Doctor of Philosophy

RESEARCH programs are offered in analytical, biological, inorganic, organic, and physical chemistry along with interdisciplinary research programs in chemical biology, molecular toxicology, materials chemistry, nanoscience, structural and computational biology, and chemical physics. A wide range of research is supported by excellent research facilities, modern instrumentation, and external funding.

A research thesis is required for the master’s degree.

Specific requirements for the Ph.D. degree are defined in the Ph.D. program document that is available upon request from the Department of Chemistry. Both the master’s and Ph.D. degrees require a minimum of 24 hours of formal course work.

Course descriptions begin on page 86.

Civil Engineering

CHAIR Douglas E. Adams
DIRECTOR OF GRADUATE STUDIES Prodvyot K. Basu
PROFESSORS Emeriti Paul Harrwood, Peter G. Hoadley, Hugh F. Keedy, Frank L. Parker, Richard E. Speece, Edward L. Thackston
PROFESSORS Mark D. Abkowitz, Douglas E. Adams, Prodvyot K. Basu, George M. Hornberger, David S. Kosson, Sankaran Mahadevan
PROFESSORS OF THE PRACTICE Curtis D. Byers, James H. Clarke, Sanjiv Gokhale
ADJOINT PROFESSORS Gregory L. Cashion, Vic L. McConnell
ASSOCIATE PROFESSORS OF THE PRACTICE Lori Troxel, John R. Veillet
ASSISTANT PROFESSORS Ravindra Duddu, Shihong Lin

DEGREES OFFERED: Master of Engineering, Master of Science, Doctor of Philosophy

DEGREE programs at the M.S. and Ph.D. level are offered in risk, reliability, and optimization; structural mechanics and materials; computational science and mechanics; and transportation engineering, and at the M.E. level in construction management, structural engineering, and transportation engineering. M.S. and Ph.D. programs in environmental engineering are offered by a separate graduate program in that subject.

The Ph.D. requires a minimum of 36 hours of formal course work and a dissertation. The M.S. degree has two options: (1) 24 hours of graduate-level course work and a research thesis, or (2) 30 hours of graduate-level course work.

The master of engineering degree, an advanced professional degree for engineers, is offered by the School of Engineering, requiring 30 hours of graduate-level course work and a project report.

Course descriptions begin on page 88.