

Graduate Study and Research

HISTORY

Lehigh began awarding graduate degrees in 1882. The first recipient, T.H. Hardcastle, of the Class of 1880, wrote his thesis on Alexander Pope, entitled *The Rights of Man*, and read it aloud at commencement in June 1882.

The first Ph.D. was granted in 1893 to Joseph W. Richards, Class of 1886. Richards, who had a background in metallurgy and electrochemistry, taught at Lehigh until his death in 1921.

Women were admitted to the graduate program in 1918 when the faculty and the board of trustees agreed to grant the degrees of M.A. and M.S. to women, provided they attended classes in the late afternoon and on Saturdays "so that the general character of campus life shall not be affected." Three women received graduate degrees in 1921, the first women to complete graduate work at Lehigh. In 1929, the rule was changed, and women were admitted on much the same basis as men.

In 1936, the Graduate School was established to administer the graduate program. The Ph.D., which was temporarily discontinued in 1894, was reinstated in nine departments: chemistry, chemical engineering, civil engineering, geology, history, mathematics, mechanical engineering, metallurgical engineering, and physics. Tomlinson Fort, professor of mathematics, was selected in 1938 as the first dean of the Graduate School.

In 1995, graduate programs were decentralized and are now administered by the individual colleges of the university, as described below.

CREDIT HOURS

Each course is designated a credit value of the course in terms of semester hours ("credit hours").

COURSE NUMBERING

The course numbering system specifies which courses can be applied to the program of study as the student progresses toward the undergraduate or graduate degree. In general, the numbering series is as follows:

- **0-99.** Courses primarily for freshmen or sophomores. Not available for graduate credit.
- **100-199.** Intermediate-level undergraduate courses. Not open to freshmen except on petition. Not available for graduate credit.
- **200-299.** Advanced undergraduate courses. Courses in the College of Business and specific departments as noted in the listings are open to freshmen and sophomores only with permission. Not available for graduate credit in the major field.
- **300-399.** Advanced undergraduate courses. Same as 200-299, but available for graduate credit in major field.
- **400-499.** Graduate-level courses, open to undergraduates only by petition.

COLLEGE OF ARTS AND SCIENCES

Robert A. Flowers, Herbert and Ann Siegel Dean

R. Michael Burger, Associate Dean for Research and Graduate Programs, Professor of Biological Science

The College of Arts and Sciences offers graduate degrees in the humanities, social sciences, mathematics, and natural sciences. The master of arts, master of science, and the doctor of philosophy degrees are given in most of the traditional academic departments and in some interdisciplinary programs. Advanced degrees may be obtained in the departments of biological sciences, chemistry, earth and environmental sciences, English, history, mathematics, physics, political science, psychology, statistics, and an interdisciplinary degree in Environmental policy.

Although degree requirements vary from department to department, most require a combination of formal coursework and independent research. Students work closely with a faculty adviser in formulating and carrying out their research programs. Students admitted to a traditional department who are interested in an interdisciplinary

approach may design a program of study and research which draws on faculty and facilities in other areas of the college or university.

For the most up to date information, interested students should check the CAS graduate website (<http://cas.lehigh.edu/grad>) or contact the Office of Research and Graduate Programs, College of Arts and Sciences, 9 West Packer Ave., Bethlehem, PA. 18015, 610-758-4281 or email to incasgrd@lehigh.edu.

COLLEGE OF BUSINESS

Georgette Chapman Phillips, Dean;

Yuliang Oliver Yao, Associate Dean

The College of Business offers the master of science degree in accounting (for non-accounting majors); master of science degree in accounting and information analysis; master of science degree in applied economics; master of science degree in management; master of business administration with concentrations in business administration, business analytics, corporate entrepreneurship, finance, marketing, international business, project management, and supply chain management; and the doctor of philosophy degree in business and economics. In addition, the College of Business and the P.C. Rossin College of Engineering and Applied Science offer an MBA and Engineering degree. Students in this program will have the opportunity to concentrate in both a business area and an engineering area during their studies. The College of Education and the College of Business offer a joint master's degree in MBA and Educational Leadership, which will develop skills in business disciplines and prepare educators for roles in school administration. The College of Business, the P.C. Rossin College of Engineering and Applied Science, and the College of Arts and Sciences offer a master of science degree in financial engineering, which provides a strong education in advanced finance and quantitative financial analysis tools. Students will be prepared to create innovative solutions for real financial problems using state-of-the-art analytical techniques and computing technology.

There are six departments in the college: Accounting, DATA (Decision and Technology Analytics), Economics, Perella Department of Finance, Management, and Marketing. More information about the various degree programs appears below. Information on the college's graduate programs may be obtained at <https://business.lehigh.edu> (<https://business.lehigh.edu/ms-management/>) or by contacting the College of Business, Graduate Programs Office, Rauch Business Center, 621 Taylor Street, Bethlehem, PA. 18015, 610-758-4450.

COLLEGE OF EDUCATION

William Gaudelli, EDD, Dean

George J. DuPaul, PHD, Associate Dean for Research

Arpana Inman, PHD, Associate Dean for Graduate Studies

The College of Education is a nationally recognized graduate college. Our distinction resides in our ability to function as a community of scholars and teachers. The diversity of our partnerships, the quality of our research and teaching, and the invigorating and supportive learning environment distinguish us as leaders among graduate colleges of education.

The College of Education offers a master of arts in education, a master of education, a master of science in education, the educational specialist, a joint master in business administration/master of education, post-baccalaureate certificates in various concentrations, the doctor of education, and the doctor of philosophy. There are six academic programs within the college including: Comparative and International Education, Counseling Psychology, Educational Leadership, School Psychology, Special Education, and Teaching, Learning and Technology. The focus of these programs is to prepare students for leadership roles in groundbreaking, cross-disciplinary inquiry that shapes educational practices nationally and internationally. While the College of Education does prepare individuals for leadership roles in school systems, we also prepare individuals for a variety of positions in business and industry, healthcare, private practice, and community-based organizations. We

embrace the philosophy that a top quality education should provide the instruction, resources, and experience necessary to create a new type of educator; one who understands the nature of learning, social equity and cultural diversity; values collaboration and teamwork; and embraces societal challenges.

In addition to these six core academic programs, there are three other units within the College of Education:

Centennial School

Centennial School is an Approved Private School, governed by Lehigh University and funded by the Commonwealth of Pennsylvania. Centennial School meets the educational needs of students with emotional disturbance and autism as defined under the Individuals with Disabilities Education Act (IDEA). With an emphasis on evidence based practices, Centennial School effectively uses an apprenticeship model to train graduate students in special education and other school-based professions such as school psychology, counseling, and educational leadership. The close partnership between Centennial and the College of Education provides Lehigh graduate students with unique research opportunities and fulfillment of practicum and internship requirements. centennial.coe.lehigh.edu/ (<http://centennial.coe.lehigh.edu/>)

The Center for Promoting Research to Practice

The center's mission is to generate new knowledge that will truly impact the lives of individuals with or at risk for disabilities and to enhance the translation of new knowledge into practice. All too often research that is created for these individuals remains at the development level and is not disseminated into best practices. The Center is focused on conducting and disseminating applied research and assuring research outcomes get into the hands of parents and practitioners as quickly as possible. <https://ed.lehigh.edu/faculty/research-centers/center-for-promoting-research-to-practice> (<https://ed.lehigh.edu/faculty/research-centers/center-for-promoting-research-to-practice/>)

Lehigh University Autism Services is a clinic housed in the Center for Promoting Research to Practice. The mission of the clinic is to develop and disseminate research-based practices that improve the well being of children with autism and their families and to serve the local community. The clinic provides intervention programs for young children with autism spectrum disorders (diagnosis to age 5) and their families. <http://wordpress.lehigh.edu/cprp/autism-services/>

Global Distance Graduate Degrees and Training Office

The Office of Global Distance Graduate Degrees and Training provides online graduate education and training to students in the U.S. and worldwide within Lehigh University's College of Education. The Global Distance Office's international initiatives include offering graduate degree programs, principal certification, non-degree graduate certificates, and summer institutes via online courses and in-person throughout the academic year. Additionally, the Global Distance Office serves as an academic resource to College of Education faculty by working with them to identify research opportunities globally, facilitating partnerships with domestic and international professional organizations, and organizing customized professional development programs at K-12 international schools worldwide. For more information, visit: <https://ed.lehigh.edu/distance>. (<https://ed.lehigh.edu/distance/>)

Information on the various degree programs can be obtained by contacting the College of Education, 111 Research Dr., Bethlehem, PA 18015, 610-758-3231 or visiting our website: <http://ed.lehigh.edu/>.

P.C. ROSSIN COLLEGE OF ENGINEERING AND APPLIED SCIENCE

Stephen P. DeWeerth, dean

John P. Coulter, senior associate dean for research

Sabrina Jedlicka, associate dean for academic affairs

There are eight academic departments within the P.C. Rossin College of Engineering and Applied Science: bioengineering, chemical and biomolecular engineering, civil and environmental engineering, computer science and engineering, electrical and computer engineering, industrial and systems engineering, materials science and engineering, and mechanical engineering and mechanics. Master of science and doctor of philosophy degrees are available

in each of these departments, as well as in computer engineering, environmental engineering, structural engineering, and polymer science and engineering. In addition, master of science programs are provided in financial engineering, management science and engineering, manufacturing systems engineering, and photonics. Master of engineering degrees are offered in biological chemical engineering, chemical engineering, chemical energy engineering, civil engineering, computer engineering, computer science, electrical engineering, energy systems engineering, environmental engineering, healthcare systems engineering, industrial and systems engineering, management science and engineering, materials science and engineering, polymer science and engineering, structural engineering and technical entrepreneurship. In cooperation with the College of Business, students can also pursue a Master of Business Administration and Engineering (MBA&E) degree. Certificate programs are available in the areas of chemical and biomolecular engineering, healthcare systems engineering, management science and engineering, nanotechnology, polymer science and engineering, probabilistic modeling across engineering and science and technical entrepreneurship.

Graduate study in the P.C. Rossin College of Engineering and Applied Science is most often related to the college's extensive research activity, and graduate students are expected to engage in analytical or experimental research as part of their programs of study. This activity involves students in the process of creating new knowledge under the direction of the college's distinguished faculty and brings them into contact with some of the most modern and advanced experimental techniques. Many college research programs are supported by contracts, fellowships, and grants from industry and from federal, state, and local governments. This funding not only provides financial support for outstanding students but also allows them to deal with some of the more complex and pressing problems facing our society in the 21st century.

Many faculty members and graduate students in the P.C. Rossin College of Engineering and Applied Science are associated with interdisciplinary research centers and institutes as well their own departments. The opportunity for interdisciplinary study allows them to cross departmental lines in specific technological areas and to work with faculty and graduate students from other departments. Centers and institutes perform research that fall under five broad categories: materials and nanotechnology, infrastructural systems, applied life science and bioengineering, energy and the environment, and complex engineering systems. Information on individual centers and specific research activities can be found at URL <https://engineering.lehigh.edu/research> (<https://engineering.lehigh.edu/research/>). Extensive research in many of these areas is also conducted within academic departments.

Further information on the graduate programs may be obtained through the Office of Graduate Studies and Research, P.C. Rossin College of Engineering and Applied Science, 19 Memorial Drive West, Bethlehem, PA 18015.