

College of Arts & Sciences

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The College of Arts & Sciences is the heart of Lehigh University, offering a wide variety of academic majors, minors, and interdisciplinary programs, while also providing essential liberal arts access to all Lehigh students. Arts & Sciences faculty are engaged as active scholars, are highly accessible, and are committed to the teaching mission of our undergraduate programs. A hallmark of our college is the faculty's ability to engage students interactively and experientially in teaching, research, and scholarship.

A College of Arts & Sciences education treats each student as a unique individual whose capacities and knowledge evolve across a lifetime of learning and engagement. Students discover and nurture their potential. They cultivate knowledge, skills, and values that free them to grapple with fundamental intellectual problems, ponder complex issues, and contribute to their communities, both during and after college.

The University motto, which quotes from the 17th-century humanist and scientist Sir Francis Bacon, is *homo minister et interpres naturae* — “humans, servants and interpreters of nature.” Inspired by this aphorism and responsive to its legacy, the College prepares students to engage with both human nature and nature writ large in a spirit of both inquiry and service. Through the liberal arts curriculum, students pursue a multidisciplinary understanding of human experience, artistic and linguistic expression, and the natural and social worlds. Students tackle big questions and contemporary challenges, build critical intellectual skills, and explore diverse disciplinary perspectives and tools. When they leave Lehigh, students are prepared to confront the challenges and opportunities of tomorrow with integrity and responsibility.

The College of Arts & Sciences invites students to explore their interests, feed their curiosity, and discover the knowledge and tools that will enable them to thrive as individuals and citizens of the world.

The College of Arts & Sciences Curriculum Overview

The College of Arts & Sciences curriculum is structured around four broad objectives of a liberal arts education:

- Building Critical Intellectual Skills
- Exploring Diverse Disciplinary Perspectives and Tools
- Tackling Big Questions and Contemporary Challenges from Multidisciplinary Perspectives
- Developing Knowledge and Expertise in a Focused Area of Study

To fulfill these objectives, students pursue broad study across the college (the Liberal Arts Program) and focused effort in an individual program of study.

Broad study in the **Liberal Arts Program** involves at least 12 distinct courses, some of which commonly overlap with major courses:

1 Big Questions Seminar	3-4
2 First-Year Writing Courses ¹	6
1 Course in Mathematics	3-4

At least 2 courses and 7 credits in each of the 4 Disciplinary Perspectives:

Interpreting & Understanding Human Experience (HE)	7
Creating & Expressing through Arts & Languages (AL)	7
Investigating the Natural World (NW), including 1 Lab (LS)	7
Investigating the Social World (SW)	7

3 Encounters in each of the following areas:

Writing (W)
Quantitative Reasoning (Q)
Contemporary Challenges (CC)

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FY Writing requirement may be fulfilled through WRT 001 & 002. Students who earn credit for both WRT 001 & 002 through AP or IB scores will take WRT 011: Advanced Writing: The Rhetorical Self, to complete the FY Writing Requirement. Options for multilingual speakers, WRT 003 & 005, are available through appropriate placement with the International Center for Academic & Professional English (ICAPE).

The College of Arts & Sciences offers several curricular options:

- A four-year College of Arts & Sciences curriculum leading to a bachelor of arts or bachelor of science degree in designated fields;
- Dual degree programs within the college and in conjunction with the other three undergraduate colleges;
- A five-year Arts-Engineering curriculum leading to a bachelor's degree from the College of Arts & Sciences and a bachelor of science degree from the College of Engineering and Applied Science;
- A five-year program leading to a bachelor's degree from the College of Arts & Sciences and a master's degree in Education (<http://catalog.lehigh.edu/coursesprogramsandcurricula/education/initialteacherpreparation/>) from the College of Education. Please see below for more information;
- Additional five-year programs leading to a bachelor's degree from the College of Arts & Sciences and a master's degree through the Colleges of Business (<https://catalog.lehigh.edu/coursesprogramsandcurricula/businessandeconomics/>), Engineering and Applied Science (<https://catalog.lehigh.edu/coursesprogramsandcurricula/engineeringandappliedscience/>), and Health (<https://catalog.lehigh.edu/coursesprogramsandcurricula/health/>).

For most students, the credits earned in a major and those earned in the Liberal Arts Program allow flexibility to pursue **additional curricular opportunities** of interest to the student. These include a minor, research experiences, internships, study abroad courses, and other free electives.

Students must meet the graduation requirement of 120 credit hours. The minimum number of credits for a major is 30. Students must maintain a minimum grade-point average of 2.0 in their major field, and in their entire program of studies.

The Liberal Arts program

Required Coursework

Foundational Courses

Big Questions Seminar

Students take one Big Questions Seminar, preferably in the first semester. Big Questions Seminars focus on complex questions that have no simple or obvious answers. These can include, but are not limited to, the deep enduring questions that humanity has grappled with for ages or emerging questions of today. Big questions often transcend disciplinary boundaries. Thus, many Big Questions Seminars illustrate how multiple disciplines or multiple fields within a discipline approach the seminar's focal question, and some are co-taught by faculty from different fields. These seminars are designed to facilitate students' transition to the intellectual environment of a college classroom and to develop students' intellectual and practical skills (e.g., inquiry and analysis, critical and creative thinking, written and oral communication, quantitative reasoning, information literacy, teamwork, problem solving).

First-Year Writing

Students take two designated courses in their first year that focus on pre-disciplinary writing, including engaging thoughtfully with the writing process, practicing clear academic writing and argument, analyzing and practicing persuasive strategies, practicing critical thinking, improving rhetorical capacities, and developing information literacy skills. Students who qualify based on AP or IB Exam scores take an honors path, which consists of one designated advanced first-

year writing course. Multilingual learners who qualify based on testing conducted by the International Center for Academic and Professional English take two courses taught by language specialists and tailored specifically for multilingual learners.

Mathematics

Students take one course in mathematics that focuses on developing logical skills, problem solving, and/or computation. Example courses include logic, proof writing, discrete mathematics, calculus, linear algebra, and statistics.

Disciplinary Perspectives

The liberal arts tradition in education includes a deep commitment to intellectual breadth. Each academic discipline provides a unique lens through which we can understand the world. Scholars and practitioners in distinct disciplines frame questions differently, utilize different sources of knowledge, and practice different methods of inquiry. These include interpretive and analytical modes of inquiry, creative and expressive forms of inquiry, and scientific approaches to studying both the natural and social worlds.

To explore these diverse disciplinary perspectives and how their distinct lenses and tools can be used to understand the world, students take at least 2 courses and 7 credits in each of the 4 areas below:

Human Experience, Language, and Arts:

- **Interpreting and Understanding Human Experience (HE)**

Courses in this category utilize analytical, critical, and interpretive forms of inquiry and focus on the human condition in different historical, cultural, linguistic, religious, philosophical, artistic, and literary contexts.

- **Creating and Expressing through Arts and Languages (AL)**

Courses in this category utilize creative and/or expressive forms of inquiry and focus on communication and artistic practice.

The Natural and Social Sciences:

- **Investigating the Natural World (NW), including 1 lab (LS)**

Courses in this category utilize scientific forms of inquiry and focus on natural phenomena in the world around us and the nature of life, matter, and the universe.

The lab enables students to practice scientific forms of inquiry and gain firsthand experience with natural and physical phenomena.

- **Investigating the Social World (SW)**

Courses in this category utilize social scientific modes of inquiry and focus on human behavior, culture, and society, and forms of social, political, and economic organization.

Encounters with Writing, Quantitative Reasoning, and Contemporary Challenges

Across coursework in the Disciplinary Perspectives and in students' individual program of studies (e.g., major, minor, free electives), students must satisfy 3 encounters in each of the following areas: Writing (W), Quantitative Reasoning (Q), and Contemporary Challenges (CC).

Encounters are opportunities within courses that emphasize and build capacity in central themes or skills present across the curriculum. The encounters system is based on the premise that students develop a richer and more complete mastery of focal skills and themes when there are multiple opportunities to practice and learn about them infused throughout the curriculum.

Encounters may be fulfilled through W-, Q-, and CC-designated courses throughout the curriculum, including courses completed for majors, minors, free electives, and courses in the Disciplinary Perspectives.

Writing Encounters

Through courses designated as Writing Encounters (W), students practice engaging thoughtfully in the process of writing, learn about

discipline-specific styles of writing, and build confidence in their own writing abilities.

Quantitative Reasoning Encounters

Through courses designated as Quantitative Reasoning Encounters (Q), students practice interpreting quantitative information, learn about applications of quantitative reasoning within disciplines, and build confidence in their own quantitative abilities.

Contemporary Challenges Encounters

Through courses designated as Contemporary Challenges Encounters (CC), students grapple with complex, large-scale challenges of the modern world, including the themes of social difference and power, sustainability, and conflict and security.

POLICIES

Navigating the liberal arts program

Courses within the Liberal Arts Program may also be used to satisfy requirements of majors, minors, and other programs.

Big Questions Seminars and courses used to satisfy requirements in the Disciplinary Perspectives may also fulfill requirements for encounters.

If a course carries multiple Encounters designations, students may apply all of them toward satisfying Encounters requirements.

First-Year Writing and courses taken to fulfill the Mathematics requirement may not be used to satisfy requirements in the Disciplinary Perspectives or as W, Q, or CC Encounters.

Transfer and study abroad courses may be used to satisfy any aspects of the Liberal Arts Program provided that the courses meet the criteria described in the Designating Courses section.

designating courses

College faculty designate courses as part of the Liberal Arts Program according to the following criteria:

Within the **Disciplinary Perspectives**, designations are applied when the learning outcomes of a course authentically match both the *subject matter* and *methodology* for that perspective. Courses designated with the Disciplinary Perspectives are broadly accessible to CAS students. Many but not all designated courses are at lower levels (000-, 100-, or 200-level) and have few prerequisites. A Disciplinary Perspectives designation can be applied to a course offered for any number of credits.

Within the **Encounters**, courses designated as W, Q, or CC may include both those that are broadly accessible to all CAS students and those that are more advanced or restricted to students in specific major or minor programs. Big Questions Seminars and courses offered for 1-2 credits may be designated as satisfying up to one encounter. All other courses offered for 3-4 credits may be designated as satisfying up to two encounters.

Courses designated **W** have a specific learning outcome dedicated to developing writing skills. Writing is a focal component of the course, either through at least one substantial module or assignment dedicated to developing writing skills or through several writing assignments occurring throughout the course. W encounters should provide opportunities for feedback and revision or improvement through a sequence of similar assignments.

Courses designated with a **Q** have a specific learning outcome dedicated to developing quantitative reasoning skills. Quantitative reasoning is a focal component of the course, either through at least one substantial module or assignment dedicated to developing quantitative reasoning or through several assignments or activities occurring throughout the course. Q encounters should guide students to interpret or use numerical information properly, or to understand and justify the models and algorithms necessary to do so.

Courses designated with a **CC** have a specific learning outcome dedicated to addressing and building comprehension of complex, critically important, large-scale and/or socially significant contemporary issues. A key feature of contemporary challenges is that they are dynamic and evolve over time. Thus, the College of Arts & Sciences faculty establish a set of focal contemporary challenges, and re-evaluate them periodically to ensure the topics

remain current. The three current challenges are (1) Social Difference and Power (analysis of social identity and structural inequities in the distribution of resources, power, and status); (2) Sustainability (analysis of the complex convergence of environmental, social, and economic factors impacting our planet, communities, and current and future generations); (3) Conflict and Security (analysis of the causes and consequences of conflict and cooperation at the interpersonal, organizational, national, and global level). Courses with a specific learning outcome dedicated to one of these three topics are assigned the CC attribute.

Major Degree Programs in the College

Bachelor of Arts and Bachelor of Science Degree Programs

Two distinct bachelor-degree programs are offered by the College, the Bachelor of Arts and the Bachelor of Science.

Bachelor of Arts degrees typically include relatively fewer major requirements, allowing more opportunities for coursework outside of the major curriculum. Bachelor of Science degrees (offered in designated disciplines), typically include more extensive coursework in the major and allied fields, with more limited coursework outside of the major curriculum. Except for this distinction, the same basic requirements must be met for both degree programs (including the minimum number of 120 hours for graduation and the minimum grade point average in the major of 2.0). **No more than six hours of military science or creative inquiry (CINQ) coursework may be applied toward either degree.**

Bachelor of Arts Degree

ba degrees are offered in the following areas:

ARTS

Architecture, Art, Art History, Design, Music, Theatre

HUMANITIES

Asian and Asian American Studies, English, Latin American & Latino Studies, Modern Languages & Literatures (Chinese, French & Francophone Studies, German Studies, Japanese, Spanish & Hispanic Studies), Philosophy, Religion, Culture, and Society

Social Sciences

Africana Studies, Anthropology, Cognitive Science, Economics, Environmental Studies, Global Studies, Health, Medicine & Society, History, International Relations, Joint Global Studies & Modern Languages & Literatures, Joint International Relations & Economics, Joint International Relations & Modern Languages & Literatures, Journalism, Journalism/Science Writing, Political Science, Psychology, Sociology, Sociology & Anthropology, Women, Gender & Sexuality Studies

Mathematics & Natural Science

Astronomy, Biology, Chemistry, Computer Science, Earth and Environmental Science, Mathematics, Molecular and Cellular Biology, Neuroscience, Physics, Statistics and Data Science

BA degrees in pre-dental science or pre-optometry science are available to students who are admitted to certain combined degree programs (see Pre-Health Professions Programs).

Bachelor of Science Degree

BS degrees are offered in the following areas:

Astrophysics, Biochemistry, Biology, Chemistry, Cognitive Science, Computer Science, Earth and Environmental Science, Economics, Mathematics, Molecular and Cellular Biology, Neuroscience, Pharmaceutical Chemistry, Physics, Psychology, Statistics and Data Science

MAJOR FIELD OF CONCENTRATION

By majoring in a specific discipline a student establishes a foundation of knowledge and develops expertise and intellectual sophistication in their field.

Students in the College can declare their major after the end of their first semester, and are expected to do so no later than the end of their fourth semester.

Standard major sequences

When a student declares a major they are assigned a major advisor from that department or program's faculty. The major advisor assists

students with course selection, research opportunities, internship selection, and other areas of professional development. In all cases, the final responsibility for meeting both major and non-major requirements rests with the student.

Special interdisciplinary majors

In addition to our established major programs, specially structured interdisciplinary majors linking multiple disciplines are possible. For example, a student interested in a professional school of urban or regional planning might wish to structure a special major consisting primarily of courses in political science, environmental studies, sociology, or any other relevant disciplines.

Any student may, with the aid of faculty members chosen from the disciplines involved, devise an interdisciplinary major program to include no less than 32 credits of related course work, with at least 15 credits from advanced courses. The major advisors and the dean of the college must approve the program.

Multiple majors and Dual degrees

A student who wishes to fulfill the requirements for more than one major program has two options: a double major or a dual degree. A double major is a single BA degree with two majors. A student pursues a double major by declaring both majors. Typically, double majors can be completed in four years, but sequencing of courses and time conflicts with required courses can introduce delays. **No more than three courses may be used to meet both majors' requirements.**

A dual degree program is a combined BA and BS program or two BS degrees in one or more of our undergraduate colleges. The BA is offered by the College of Arts & Sciences, and the BS may be in CAS or in one of the other undergraduate colleges. A student pursues a dual degree by declaring the first program and then requesting the second degree program by filling out a Dual Degree Petition Form, which must be accompanied by an approved semester-by-semester academic plan. The dual-degree student must satisfy major and distribution requirements for both degrees and earn a minimum of 30 additional credits beyond those required for the first degree. All of the 30 additional credits must be taken at Lehigh or in Lehigh residency programs. The requirement of 30 additional credits typically makes the dual degree program a five-year program. There is no limit on the number of overlapping courses between two degrees, but there must be at least 30 credits of stand alone coursework in each degree program. For administrative purposes, students who take two degrees or two majors must designate one as their primary major or primary degree program.

Minor Programs in the college

Certain departments, divisions, and programs in the College afford students an opportunity to minor in an additional field of concentration other than their major field of study.

Minors require a minimum of 15 credits, but the specific content is determined by the department, division, or program offering that minor. A minor is optional, and if successfully completed, will be shown on the university transcript in the same manner as the major field. A 2.0 minimum grade-point average is required for courses in the minor. Because of this requirement, no course in the minor program may be taken with Pass/Fail grading. No more than one course may be double-counted toward a major and a minor, and no more than one course may overlap between two minors.

The following are established minors in the College of Arts & Sciences:

- Actuarial Science
- Africana Studies (Interdisciplinary Programs)
- Anthropology
- Apparel Design
- Applied Mathematics
- Architecture Studio
- Art History
- Art Studio
- Asian and Asian American Studies (Interdisciplinary Programs)

- Astronomy
- Biology
- Chemistry
- Chinese
- Cognitive Science (Interdisciplinary Programs)
- Computer Science
- Creative Writing
- Documentary Storymaking (Interdisciplinary Programs)
- Earth and Environmental Science
- Economics
- English
- Environmental Studies (Interdisciplinary Programs)
- Ethics (Interdisciplinary Programs)
- Film Studies (Interdisciplinary Programs)
- French
- German
- Global Studies (Interdisciplinary Programs)
- Graphic Design
- Health, Medicine, and Society (Interdisciplinary Programs)
- History
- International Relations
- Japanese
- Jewish Studies (Interdisciplinary Programs)
- Journalism: Science and Environmental Writing
- Latin American and Latino Studies (Interdisciplinary Programs)
- Mass Communication
- Molecular Biology
- Museum Studies
- Music
- Philosophy
- Physics
- Political Science
- Probability and Statistics
- Product Design
- Psychology
- Public Administration
- Pure Mathematics
- Religion, Culture, and Society
- Russian
- Sociology
- Sociology and Anthropology
- Spanish and Hispanic Studies
- Sustainability
- Theatre
- Women, Gender, and Sexuality Studies (Interdisciplinary Programs)
- Writing

*** For minors outside of the College of Arts & Sciences, please see below.**

OPPORTUNITIES

ECKARDT SCHOLARS PROGRAM

The Eckardt Scholars Program is a highly selective and unique honors program in the College of Arts & Sciences. The program prioritizes intellectual curiosity, independent work, and close mentoring relationships between students and faculty. Each incoming class includes approximately twenty Eckardt Scholars. These students receive unique academic privileges that provide them with great opportunities at Lehigh and beyond. Students in the program are exempt from the Liberal Arts program and work with their major advisor and the Eckardt Scholars Program Director to create a flexible course of study that best suits their academic interests and ambitions. Although exempt from the Liberal Arts program requirements, students will complete the requisite number of credits for their degrees

and all correlative requirements for their majors. The program includes participation in two Eckardt Scholar Seminars and completion of an independent project (e.g., a thesis, artistic creation, or other capstone experience) during the senior year.

Participation in the Eckardt Scholars Program is restricted to only the most well-qualified students. Some students are invited to enroll when first admitted to Lehigh, while others are identified by faculty and encouraged to apply during their first few semesters. Admission to the program is decided on the basis of academic records, written statements of educational goals, and at least two faculty recommendations.

INTERNSHIPS

Many departments and programs offer credit for specific internship experiences. Students should consult with their home department for information on arranging internships. The University faculty has established three important criteria that must be met by all internships: 80 hours of work are required for each credit awarded, no credit can be awarded for an internship *ex post facto*, and the student must register for the internship course during the same term that the internship work is performed. Students must pre-arrange all internship experiences with the appropriate department. Internship credits cannot be awarded for work experiences lacking a distinct, identifiable educational component. A memorandum of understanding circulated among the employer, student, and departmental internship course director helps to promote a common understanding of the educational and work objectives of the internship. Students are advised that not all work experiences advertised as "internships" warrant academic credit, even though they may be otherwise worthwhile.

PRE-LAW PROGRAM

In keeping with the policy of the Association of American Law Schools, the university does not have a prescribed pre-law curriculum; however, Lehigh has a strong pre-law tradition. Successful candidates for law school demonstrate skills in critical analysis, logical reasoning, and communication and have pursued rigorous coursework of significant breadth and depth. Lehigh students have attained entrance to law schools from diverse curricula in all three of the undergraduate colleges. Specifically law-related courses are offered in the College of Arts & Sciences (e.g. Constitutional Law and Politics, Civil Rights and Civil Liberties, Law and Order) and the College of Business (e.g., Introduction to Law and Legal Environment of Business).

In addition to formal academic instruction, Lehigh provides other opportunities for learning about the law and legal careers. The annual Tresolini Lecture series brings nationally recognized speakers to campus for extended interactions with faculty and students. Tresolini lecturers have included present and past U.S. and state Supreme Court justices and renowned legal scholars and practitioners. Lehigh also provides opportunities for gaining academic credit in several off-campus programs that provide practical experience in law and public affairs.

Advising is available to prospective pre-law students on a continuous basis from first-year orientation through the law school application process in the senior year. The pre-professional advisor in the Center for Career and Professional Development coordinates these pre-law counseling services.

PRE-HEALTH PROFESSIONAL PROGRAMS

Schools of medicine, dentistry, optometry, podiatry, and veterinary medicine stress the importance of a strong liberal arts education as well as prescribed studies in the sciences. Although most pre-health students will choose a major in a pure or applied science, as long as candidates have the essential courses in biology, chemistry, physics, and mathematics, they may major in any of the three undergraduate colleges.

A health professions advisory committee, which includes the pre-professional advisor and faculty members from the sciences and social sciences, provides career and academic counseling and works closely with students from first-year orientation through the entire process of applying to professional schools. Students with an interest in the health professions are urged to consult with the pre-professional advisor in the Center for Career and Professional Development as early as possible in their academic career.

Combined-Degree Program in Dentistry

In cooperation with the School of Dental Medicine at the University of Pennsylvania, Lehigh offers an accelerated program that enables selected students to earn both the baccalaureate degree (B.A.) with a major in pre dental science and the doctor of dental medicine degree (D.M.D.) after seven years of study at the two institutions. In the first three academic years at Lehigh, credit hours are earned toward the 120 credits required for the baccalaureate degree. The next four years are spent in the regular program of dental education at the Penn School of Dental Medicine in Philadelphia. By successfully completing their first year at the dental school, students acquire the necessary additional credit hours for the Lehigh baccalaureate degree.

During their first three years at Lehigh, students are expected to make satisfactory progress in prescribed academic areas as well as in the area of personal growth, developing those attributes ultimately needed to become a dentist. Penn Dental School receives student grades and monitors student progress through feedback from Lehigh. Students are expected to attain specified grade point averages and DAT scores. Students' undergraduate credentials are processed through the Admissions Committee of Penn Dental School before a final definitive acceptance is offered. The dental college reserves the right to withdraw an acceptance, or require that a student spend additional time on the undergraduate level, on the grounds of academic or personal maturation concerns.

Application for admission to this program is made through Lehigh's Office of Admissions. Application deadline is January 1.

Required Science and Math Courses**Chemistry**

Select one of the following: 8

CHM 030 & CHM 031	Introduction to Chemical Principles and Chemical Equilibria in Aqueous Systems	
CHM 040 & CHM 041	Honors General Chemistry I and Honors General Chemistry II	
CHM 110 & CHM 111	Organic Chemistry I and Organic Chemistry Laboratory I	4
CHM 112 & CHM 113	Organic Chemistry II and Organic Chemistry Laboratory II	4

Biology

BIOS 041 & BIOS 042	Introduction to Cellular and Molecular Biology and Introduction to Cellular and Molecular Biology Laboratory	4
BIOS 115 & BIOS 116	Genetics and Genetics Laboratory	4
BIOS 044 & BIOS 045	Introduction to Integrative and Comparative Biology and Introduction to Integrative and Comparative Biology Laboratory	4
BIOS 371	Elements of Biochemistry I	3
BIOS 372	Elements of Biochemistry II	3

Physics

Select one of the following: 5

PHY 010 & PHY 012	General Physics I and Introductory Physics Laboratory I	
PHY 011 & PHY 012	Introductory Physics I and Introductory Physics Laboratory I	

Select one of the following: 4-5

PHY 013 & PHY 022	General Physics II and Introductory Physics Laboratory II	
PHY 021 & PHY 022	Introductory Physics II and Introductory Physics Laboratory II	

Math

Select one of the following: 4

MATH 012	Basic Statistics and Data Science	
BIOS 130	Biostatistics	

Select one of the following: 7-8

MATH 021 & MATH 022	Calculus I and Calculus II
MATH 051 & MATH 052	Survey of Calculus I and Survey of Calculus II

Total Credits 54-56

Required Non-Science Courses

Big Questions Seminar	3-4
First Year Writing Courses	6
Interpreting & Understanding the Human Experience (HE)	7-8
Creating & Expressing through Arts & Languages (AL)	7-8
Investigating the Social World (SW)	7-8
Approved Electives	9

Across their science and non-science coursework, students must also satisfy 3 encounters in each of the following areas:

Writing (W)
Contemporary Challenges (CC)
Quantitative Reasoning (Q)

Total Credits 39-43

Combined-Degree Program in Optometry

In cooperation with the State University of New York College of Optometry in New York City, Lehigh offers an accelerated program in which students may earn both the baccalaureate degree (B.A.) with a major in behavioral neuroscience and the doctor of optometry degree (O.D.) after seven years of study at the two institutions. In the first three academic years at Lehigh, credit hours are earned toward the 120 credits required for the baccalaureate degree. The next four years are spent in the regular program of optometry education at SUNY College of Optometry. By successfully completing their first year at the optometry college, students acquire the necessary additional credit hours for the Lehigh baccalaureate degree.

SUNY College of Optometry receives student grades and monitors student progress through feedback from Lehigh. Students are expected to attain specified grade point averages and OAT scores. Students' undergraduate credentials are processed through the Admissions Committee of SUNY Optometry before a final definitive acceptance is offered. The optometry college reserves the right to withdraw an offer of acceptance on the grounds of academic or personal maturation concerns.

Students may apply to this program either during their initial application or during their enrollment at Lehigh. Application for incoming students is made through Lehigh's Office of Admissions. Application deadline is January 1.

Required Science and Math Courses**Chemistry**

Select one of the following: 8

CHM 030 & CHM 031	Introduction to Chemical Principles and Chemical Equilibria in Aqueous Systems	
CHM 040 & CHM 041	Honors General Chemistry I and Honors General Chemistry II	
CHM 110 & CHM 111	Organic Chemistry I and Organic Chemistry Laboratory I	4
CHM 112 & CHM 113	Organic Chemistry II and Organic Chemistry Laboratory II	4

Biology

BIOS 041 & BIOS 042	Introduction to Cellular and Molecular Biology and Introduction to Cellular and Molecular Biology Laboratory	4
BIOS 115 & BIOS 116	Genetics and Genetics Laboratory	4
BIOS 044 & BIOS 045	Introduction to Integrative and Comparative Biology and Introduction to Integrative and Comparative Biology Laboratory	4

BIOS 130 or MATH 012	Biostatistics Basic Statistics and Data Science	4
BIOS 235	Human Physiology	3
BIOS 324 & BIOS 325	Microbiology and Microbiology Laboratory	5
BIOS 371	Elements of Biochemistry I	3
BIOS 372	Elements of Biochemistry II	3

Physics

Select one of the following:		5
PHY 010 & PHY 012	General Physics I and Introductory Physics Laboratory I	
PHY 011 & PHY 012	Introductory Physics I and Introductory Physics Laboratory I	
Select one of the following:		4-5
PHY 013 & PHY 022	General Physics II and Introductory Physics Laboratory II	
PHY 021 & PHY 022	Introductory Physics II and Introductory Physics Laboratory II	

Math

Select one of the following:		7-8
MATH 021 & MATH 022	Calculus I and Calculus II	
MATH 051 & MATH 052	Survey of Calculus I and Survey of Calculus II	

Psychology

PSYC 001	Introduction to Psychology	4
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Total Credits **66-68**

Required Non-Science Courses

Big Questions Seminar	3-4
First Year Writing courses	6
Interpreting & Understanding the Human Experience (HE)	7
Creating & Expressing through Arts & Languages (AL)	7
Investigating the Social World (SW)	3-4

Across their science and non-science coursework, students must also satisfy 3 encounters in each of the following areas:

Contemporary Challenges (CC)
Quantitative Reasoning (Q)
Writing (W)

Total Credits **26-28**

MINORS & CERTIFICATES OUTSIDE OF CAS

Students also have the opportunity to pursue and/or apply to minor or certificate programs in the other undergraduate colleges and should review their requirements in their catalog listing. These include:

- Business, College of Business
- Community Health, College of Health
- Education, College of Education
- Engineering, College of Engineering
- Entrepreneurship, College of Business
- Ethics, Intercollegiate
- Global Health, College of Health
- Health Policy and Politics, College of Health
- Indigenous Peoples Health, College of Health
- Marketing, College of Business
- Maternal and Child Health, College of Health
- Population Health, College of Health
- Real Estate, College of Business
- Supply Chain Management, College of Business

EDUCATION MINOR

The education minor helps undergraduates explore career options in school teaching or other professional careers with preschool, elementary, and secondary students, including students with disabilities and English Learners. The minor may accelerate entry into

a teaching career because appropriate credits from undergraduate coursework may be applied to one of Lehigh's graduate-level Teacher Education programs.

The minor offers a systematic background of professional education experiences, coordinating practicum activities with theory courses designed to provide a foundation for future educational studies. Its focus is exploratory.

The experiences of the minor are intended to enrich an individual's understanding of education as a central intellectual activity of our culture and to provide self-understanding of one's own potential as an educator.

An undergraduate may take these courses with the approval of the advisor and minimum GPA of 2.75. Completion of the minor does not assure admission to one of the Teacher Education Programs to become a certified elementary or secondary teacher.

Fifteen credit hours are required for the education minor.

Completion of the minor does not guarantee subsequent admission into any of the College of Education degree or certification programs.

For more information about our Education Minor, visit <https://ed.lehigh.edu/academics/programs/teacher-education> or contact Dr. Brook Sawyer by email: lbs211@lehigh.edu

ELEMENTARY & SECONDARY EDUCATION 4:1 ACCELERATED MASTER'S PROGRAM

The College of Education offers a five-year degree program that is designed to allow students to earn both a bachelor's degree and a master's degree in five years instead of the traditional six.

The combined degree program leads to (1) a B.A./B.S degree in an academic discipline from the College of Arts & Sciences, the P.C. Rossin College of Engineering and Applied Sciences, or the College of Business, and (2) an M.Ed. degree in elementary education or an M.Ed or M.A. degree in secondary education. In addition, students also earn eligibility for an Instructional I teaching certificate from the Pennsylvania Department of Education (PDE). These PDE certification areas are:

- Biology 7-12
- Chemistry 7-12
- Earth and Space Science K-12
- English 7-12
- General Science 7-12
- Grades PreK-4
- Mathematics 7-12
- Physics 7-12
- Social Studies 7-12

Freshmen, sophomores and juniors with a minimum overall GPA of 2.75 may apply to the 5-year teacher education program. Those accepted typically begin education courses in the second semester of their sophomore year (junior year for those admitted later).

Criteria for admission to the program include:

- A demonstrable commitment to learning and intellectual growth
- An expressed interest in teaching as a career
- Previous experience in working with young people; this can be gained in the summers of freshman and sophomore years.

In the fall semester of their senior year, students must complete an application for admission to the graduate College of Education (elementary or secondary education) in order to continue in the program and complete the master's degree/Instructional Level I teacher certification eligibility portion of the program.

For more information about the program, visit <https://ed.lehigh.edu/academics/programs/teacher-education>.