

Engineering Dual-Degree Program

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The Dual-Degree Engineering Program at Pacific Lutheran University provides students with the opportunity to combine a liberal arts education with rigorous study in engineering. Students who complete the program earn two degrees - one from PLU and the other from an engineering school accredited by ABET (Accreditation Board for Engineering and Technology). For the well-prepared student, the total length of study is five years – three years at PLU and two years at the engineering school; hence, the program is sometimes referred to as the “Three-Two Engineering Program.”

Most subdisciplines of engineering are available to students in the Dual-Degree Program, including electrical, mechanical, civil, chemical, aerospace and biomedical engineering. Formal agreements exist with Columbia University in New York City and Washington University in St. Louis. At both schools, Dual-Degree students form a community. They share residence facilities and often are enrolled in many of the same courses. PLU students who have participated in the Dual-Degree Program report their rich cultural and academic experiences at both schools.

THE PLU PROGRAM

The Dual-Degree student is awarded a PLU degree when the PLU requirements are satisfied and the program of study at the engineering school is completed. The PLU degree that typically is awarded is the Bachelor of Arts in physics. The B.A. in physics is well recognized by engineering schools and is the most frequently awarded degree by four-year schools with dual-degree programs. The physics degree can be selected by Dual-Degree students in all engineering subdisciplines, but students wishing to study chemical engineering may wish to consider the option of obtaining the B.A. in chemistry from PLU.

TRANSFER TO NON-AFFILIATED ENGINEERING SCHOOLS

Occasionally, PLU students choose to transfer to an engineering school that does not participate in the Dual-Degree program. PLU nonetheless recognizes these students as participants in the Dual-Degree program and awards the appropriate PLU degree upon successful completion of their program at the engineering school. Since the PLU curriculum may not mesh smoothly with courses at unaffiliated institutions, the total time for degree completion may be more than five years.

Student Advising

Individual departments do not provide advice on the Dual-Degree program. All prospective Dual-Degree students, regardless of their intended engineering subdiscipline, should consult with the Dual-Degree director (in the Physics Department) very early in their academic program.

PLU and the participating engineering schools recommend that Dual-Degree students use their time at PLU to secure their academic foundations in mathematics, physics, and chemistry. Math skills are particularly important to develop, and poor math skills are the most frequent reason prospective engineering students fail to succeed in the program. While at PLU, students should concentrate on the fundamentals in preparation for advanced engineering courses at the three-two affiliated engineering school.

PLU REQUIREMENTS

In order to earn a PLU degree in the Dual-Degree program, the following requirements must be satisfied:

- **Completion of the following science and mathematics courses
44 semester hours**

MATH 151, 152, 253 (12 semester hours)

MATH 351 or PHYS 354 (4 semester hours)

PHYS 153, 154, 163, 164, 223 (14 semester hours)

CHEM 115, 116 (eight semester hours)

CSCE 131, 144 (six semester hours)

- **Completion of the general university requirements as specified in the catalog, except that the following general requirements are waived for all dual-degree (3-2) students:**

- Completion of a minimum of 128 semester hours on the PLU transcript;
- Completion of a minimum of 40 semester hours from courses numbered 300 and above;
- The requirement that at least 20 of the minimum 40 semester hours of upper-division work must be taken at PLU;
- The requirement that the final 32 semester hours of a student's program be completed in residence at PLU;
- The requirement that the senior seminar/project be completed at PLU. Senior projects from the engineering school (a characteristic of ABET-accredited schools) will satisfy the PLU senior project requirement for Dual-degree students upon approval of the project by the appropriate PLU department chair.

BACHELOR OF ARTS MAJOR IN PHYSICS

12 additional semester hours

- **Completion of an additional 12 semester hours of electives in science and mathematics from the following courses:**

MATH 331, 356

PHYS 240, 331, 333, 334, 336

CSCE 245

CHEM 341 may be substituted for PHYS 333.

The particular courses chosen will depend on the intended subdiscipline and the engineering school's entrance requirements. Students should consult with the program director before choosing their electives.

BACHELOR OF ARTS MAJOR IN CHEMISTRY

19 additional semester hours

- Completion of organic chemistry (CHEM 331, 332, 333, 334) and physical chemistry (CHEM 341, 342, 343)

THE ENGINEERING SCHOOL PROGRAM

The course of study at the engineering school will depend on both the school and the subdiscipline. Between Columbia University and Washington University, approximately 20 different engineering subdisciplines are available to Dual-degree students. These include the more common subdisciplines (civil, chemical, electrical, mechanical) and others such as operations research, applied mathematics, earth and environmental engineering and systems science. Details are available from the PLU program director.

ACADEMIC EXPECTATIONS

For admission to their engineering program, Columbia University requires a cumulative PLU grade point average of 3.00 or higher, and a grade point average of 3.00 or higher in pertinent mathematics and science courses. For Washington University, the required grade point average is 3.25 both overall, and in science and mathematics courses. Students who do not meet these requirements are considered on a case-by-case basis. Although students who choose to transfer to another engineering school may be able to gain admission with slightly lower grades than those required by Columbia University and Washington University, all prospective engineering students are well advised to use the higher standard as a more realistic indication of what will be expected of them in the engineering school.

Engineering schools often do not allow pass-fail courses; thus, PLU students are advised not to enroll in mathematics, science or engineering courses for pass-fail grading.

Columbia University requires that students attend at least two full-time years at PLU before transferring.

For more information, contact the dual-degree program director in the Department of Physics or visit the program website at www.nsci.plu.edu/3-2program.

Go to the *PLU Directory of Approved Courses* to view *Chemistry (CHEM)* on page 161 and *Physics (PHYS)* on page 205.

English

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English offers excellent preparation for any future requiring integrative thinking, skill in writing, discernment in reading, an appreciation of human experience and aesthetic values, and the processes of critical and creative expression. Business, government, technology, education, and publishing are areas where our graduates frequently make their careers.

Our program offers emphases in literature and writing, as well as special competencies in children’s literature and a minor in publishing and printing arts. The English Department also supports the study away programs, and we offer study away to such places as Africa, Australia, and the Caribbean.

Faculty: Albrecht, *Chair*; Barot, Bergman, Brown, Campbell, Jansen, Kaufman, Levy, A. Mandeville, Marcus, D.M. Martin, op de Beeck, Robinson, Seal, J. Smith, Skipper, B. Temple-Thurston.

Foreign Language Requirement

All English majors must complete at least two years of a foreign language at the university level, or the equivalent (see College of Arts and Sciences Foreign Language Requirements, Option I).

ENGLISH MAJOR (Emphasis on Literature)

The English major with an emphasis on literature introduces students to the great literary traditions of Britain, North America, and the English-speaking world. The major in literature places courses organized by historical period at the heart of the student’s program, allowing students to read the great works that define the periods, and to explore the ways in which cultural contexts shape the literary imagination. Students who select the emphasis on literature can expect to learn how sensitive readers engage texts through their own speaking and writing, following their insights into the rich pleasures of literary language and growing more sophisticated in constructing effective interpretive arguments. They will also be introduced to the ways in which major critical traditions frame our approaches to literature and define the issues that keep literature meaningful and relevant in our lives.

Students considering English with an emphasis on literature as a major, but who are still undecided, might begin with a 200-level course. Even though no 200-level course is required for majors, students may request that one appropriate 200-level course be substituted for one similar Periods and Surveys course at the 300 level.

Courses offered through correspondence, on-line, and independent studies are not accepted to meet the literature requirement.

MAJOR REQUIREMENTS

At least 36 and up to 44 semester hours in English (excluding Writing 101) with at least 20 hours upper division, distributed as follows:

- ENGL 300: English Studies Seminar**
Four semester hours

Required for all English majors. Must be taken before (not concurrently with) Senior Capstone (ENGL 451 or 452). Students are recommended to take ENGL 300 in their sophomore or junior year.

- Historical Surveys and Topics**
16 semester hours; four from each of Lines 1-4 below).

Line 1: Early

- ENGL 301: Shakespeare
- ENGL 351: Medieval Literature
- ENGL 353: Renaissance Literature
- ENGL 355: Special Topics in Literature Before 1660