



PROGRAM IN COMPUTING FOR THE ARTS AND SCIENCES

Helping LSA scientists, artists, and humanities scholars build foundational computing skills

The digital world impacts the lives of everyone on earth. Undergraduates need to be able to enter the workforce today with solid digital literacy and a background in the role of computing in society, including familiarity with manipulating large data sets and some knowledge of coding. The Program in Computing for the Arts and Sciences (PCAS) is developing an innovative program in computing education specifically to meet the diverse needs of LSA students.

Dozens of faculty and students were interviewed, and over 100 faculty completed a survey to determine what computing skills are needed by liberal arts and sciences students. PCAS is in the early phase of developing a program to expand the teaching of computational methods to touch all areas of LSA, integrated in courses in natural and social sciences and the humanities to enable every LSA student to use computing to advance knowledge and to express themselves effectively. Every LSA student should have the ability to talk about computing, to communicate their intent to software developers, and to critically consider the impact of technology on diversity, equity, inclusion, and justice.

Whereas computer science and engineering courses focus on students developing the ability to understand and develop computing devices, software, and infrastructure, PCAS will offer courses and minors that prepare students to integrate computation into their problem-solving, creative practices, and analytical toolkit. Students with PCAS minors will be able to understand the task of software development, know the language and specialty terms of programmers, and can facilitate communication between software developers and other parts of an organization. These students will know how to analyze, critique, design, and invent with technology. They will be well-prepared to be technical managers, entrepreneurs, and designers, or to work between design and development groups within an organization. And they will be able to take on the challenge of creating technology that furthers social goals.

While we know of peer institutions that have programs in computational media, or computational science, or digital scholars, no other university in our peer set is aiming to meet all of their computing education needs in liberal arts and sciences. We are developing a unique, first of its kind program.

PCAS THEME AREAS

Computing for Discovery: Working with large amounts of data, student scientists learn to use computing to advance discoveries by creating models that make theories concrete or using simulations to test models.

Computing for Expression: From social media to Pixar, computing has changed how human beings express themselves. Computational forms of expression are an object of study for humanities and social science scholars and provide an array of mediums within which to develop and invent.

Computing for Justice (or critical computing): Computers provide those who know how to utilize them with power over cultural, social and political thought, national conversation and ultimately influence decision making at all levels of society. PCAS provides students with the knowledge and tools to create alternative models of, and infrastructures for, computing technologies in order to further welfare, justice, and equity.

PCAS STRATEGIC FUNDS

Over time, we expect PCAS will have solid budget support from tuition revenue, as student enrollment ramps up in the next few years. Right now, we are seeking funding to ensure a robust program launch that will both attract and support students with instruction, staffing, program resources, technology, and infrastructure.

PCAS PEOPLE FUND

This fund will support the people needed to develop and begin delivering a core PCAS curriculum including 8-12 courses. It will ensure strong student support from both graduate student instructors and undergraduate learning assistants, and provide the resources needed for these teams to engage in iterative course design during this early period. It can also support visiting scholars who bring important perspectives and additional student engagement. Support of PCAS through short term, expendable funding of \$750,000 per year for three years, totaling \$2.25 million will support our efforts to recruit, hire, and support faculty, graduate student instructors, research assistants, administrative staff, visiting scholars and lecturers, undergraduate learning assistants and peer coaches.



“Learning about programming helps to democratize this powerful technology. PCAS prepares students to be better informed citizens and scholars who harness computing technologies for the common good of society and for advancing the sciences.”

—Mark Guzdial, director



PCAS INFRASTRUCTURE FUND

Gifts to this fund will help defray one-time costs for new equipment (like servers that can accommodate big data), software, classroom and technology upgrades, and some limited facilities/space renovations. Expendable support of \$250,000 per year for three years, totaling \$750,000 is needed. Ongoing upgrades will be funded by LSA.

PCAS PROGRAM FUND

Gifts to this fund would provide financial resources to fund curriculum development, success metrics and analytics, ongoing development of web and social media presence to drive student engagement, partnerships with existing undergraduate student programs (e.g., the LSA Opportunity Hub, Comprehensive Studies Program, Transfer Student Center), support ongoing faculty and staff training and participation in professional conferences. To maximize our launch of programming, expendable funding of \$100,000 per year for three years, totaling \$300,000 is needed.

WAYS TO FUND YOUR GIFT

Your gifts of cash, pledges, or appreciated securities change lives and allow you to create a lasting legacy that will enable the best and brightest minds to experience a liberal arts education, solve problems in a changing world, and yield ideas and innovations that will make a difference in Michigan and around the globe.

CONTACT INFO

LSA Advancement // College of Literature, Science, and the Arts
101 N. Main Street, Suite 850 // Ann Arbor, MI 48104

P. 734.615.6333 // F. 734.647.3061 // lsa.umich.edu/computingfor