

# Societal Computing, Minor

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## Minor in Societal Computing

**This minor is available to non-SCS students only.**

Designing software and computational systems today means shaping the possibilities for social interaction, enforcing the protection of our digital rights, structuring how we conduct business and collaborate, and impacting other constructs of society. The Undergraduate Minor/Concentration in Societal Computing prepares students to participate in the technology design process by providing students with an understanding of the ways technology design decisions are influenced by and structure our social, cultural, public policy and commercial worlds.

This cross-disciplinary program offers undergraduates additional exposure to computer science problems related to existing and emerging technologies and their associated social, public policy, legal, business and organizational contexts. The minor/concentration provides students with a foundation in the skills necessary to analyze ethical, policy and legal issues related to computing technology and to reason about the suitability of and tradeoffs associated with technology for a particular application. Students may go on to apply these skills in their professional careers or pursue further studies in societal computing.

Students enrolled in an SCS major can complete a concentration in societal computing, while all other CMU students are eligible to apply for this minor. The requirements are the same for each, and include completing two required courses and three electives.

## Admissions

The minor/concentration has open enrollment dates. Interested CMU students should contact the program directors with the following information:

- Anticipated graduation year.
- Primary major.
- Additional second major or minor (if any).
- Cumulative GPA.
- Mid-semester grades for the current spring semester (first-years only).
- Proposed schedule of study for completing the minor.

## Curriculum

### Prerequisites

Students should have completed 15-110 Principles of Computing or 15-112 Fundamentals of Programming and Computer Science (or demonstrate equivalent introductory programming experience) prior to starting the minor/concentration.

### Required Courses

Students must take both of the classes below for the minor/concentration.

|        |                                       | Units |
|--------|---------------------------------------|-------|
| 17-222 | Introduction to Societal Computing    | 9     |
| 17-200 | Ethics and Policy Issues in Computing | 9     |

### Elective and Project Requirement

Students must take three total courses, one (1) from the Methods category, and two (2) from the Breadth category. See the approved courses below. In all cases, crosslisted courses are allowed.

**At least one Methods or Breadth elective course must have a course project requirement (indicated with an \*).**

Other courses may be approved as societal computing electives on a case-by-case basis.

### Methods Course

At least one of the electives must be a course focused on the techniques used by professionals in the field to analyze, build and make decisions about computing systems. Select from the following list.

|            |                                                                  | Units |
|------------|------------------------------------------------------------------|-------|
| 17-320     | Machine Learning and Sensing for Healthcare *                    | 12    |
| 17-338     | Network Analysis: The Hidden Structures behind the Webs We Weave | 12    |
| 17-334/734 | Usable Privacy and Security *                                    | 9     |
| 17-422     | Human-AI Interaction using Sensing Systems *                     | 12    |
| 17-537/737 | Artificial Intelligence Methods for Social Good                  | 9     |
| 17-685     | AI Enabled Network Science *                                     | 12    |
| 17-803     | Empirical Methods *                                              | 12    |

### Breadth Courses

At least 18 additional units must be taken through courses on the following list. Students may also take an additional Methods elective from the list above to satisfy up to 12 of these units.

Students may also satisfy up to 12 units of the Breadth course requirement with (17-315 S3D Undergraduate Independent Study). For independent study units to count toward this requirement, a study plan must be submitted and preapproved by the faculty research adviser and minor/concentration co-directors.

|               |                                                                    | Units   |
|---------------|--------------------------------------------------------------------|---------|
| 17-209        | Demystifying AI for Everyone: Concepts and Applications            | 9       |
| 17-303/703    | Cryptocurrencies, Blockchains and Applications                     | 9       |
| 17-315        | S3D Undergraduate Independent Study *                              | Var.    |
| 17-331        | Information Security, Privacy and Policy in the Age of AI          | 12      |
| 17-333/733    | Privacy Policy, Law, and Technology *                              | 9       |
| 17-416        | Responsible AI & AI Governance: Identifying and Mitigating Risks * | 6 or 12 |
| 17-562/762    | Computer and AI Law                                                | 9       |
| 17-731        | Foundations of Privacy                                             | 12      |
| 17-735        | Engineering Privacy in Software *                                  | 12      |
| 02-120        | Programming for Scientists                                         | 12      |
| 05-315        | Persuasive Design *                                                | 12      |
| 05-318        | Human AI Interaction                                               | 12      |
| 05-391        | Designing Human Centered Software                                  | 12      |
| 11-430        | Ethics, Safety, and Social Impact in NLP and LLMs                  | 12      |
| 16-161        | Artificial Intelligence and Humanity                               | 12      |
| 16-467        | Introduction to Human Robot Interaction *                          | 12      |
| 16-735        | Ethics and Robotics                                                | 12      |
| 19-101        | Introduction to Engineering and Public Policy                      | 12      |
| 19-433        | Data Science for Technology, Innovation and Policy                 | 9       |
| 19-469        | Behavior, Decision and Policy                                      | 9       |
| 19-654        | Regulation of Internet Edge Platforms                              | 6       |
| 67-348        | Black Mirror - Cultural Representations of Technology              | 9       |
| 73-367        | AI, Technology, and Work                                           | 9       |
| 88-237        | The Happy Cyborg                                                   | 9       |
| 88-436/10-736 | Human-AI Complementarity for Decision Making                       | 9       |

### Double-Counting

At most two courses can be double-counted with any major, minor or other concentration.