

**Syllabus:** This brief syllabus is supplemented by additional details in the [Course Orientation pages](#). In these pages you can find information on the following (to quickly navigate back to this information, click on Syllabus in the sidebar):

- [What this course is about](#)
- [Course goals](#)
- [Course format](#)
- [Workflow and Time Commitment](#)
- [Teamwork](#)
- [Assessment](#)
- [AP50 & Health](#)
- [Policies](#)
- [Getting Help/Teaching Team](#)
- [Schedule](#)
- [Organizational links](#)

AP50 is a year-long, team- and project-based introduction to physics focusing on the application of physics to real-world problems. The AP 50A and B sequence, designed for engineering and physics concentrators, is equivalent in content and rigor to a standard calculus-based introductory physics course sequence. Lectures and exams are replaced by interactive, hands-on, and collaborative learning activities that will not only help you master physics concepts and hone your scientific reasoning and problem-solving skills, but also grow your capacity for self-directed learning and develop your collaborative skills.

#### Course content summary:

- **AP50a** (fall semester): Kinematics, mechanics, waves.
- **AP50b** (spring semester): Electromagnetism and optics.

#### Prerequisites:

- **For AP50a:**
  - **Physics:** None. Prior physics at the high-school or college level **not** required.
  - **Math:** Single-variable calculus at the level of Mathematics 1b (OK to take concurrently). You should be comfortable performing basic derivatives and integrals of a single variable.
- **For AP50b:**
  - **Physics:** AP50a or equivalent.
  - **Math:** Multivariable calculus at the level of Mathematics 21a (can be taken concurrently). You should be comfortable performing basic vector calculus, including line and surface integrals.

**Materials:** All teaching materials, project materials, and platform subscriptions will be provided free of any charge. There are **no additional costs** associated with this course.

**Lectures:** None! Your primary learning happens individually (asynchronously) and with your team, either during section with the instructors and other members of the teaching team, or any other times that work for the team.

**Class sections:** Tu/Th 9:45 am to 12:30 pm ET in the Science and Engineering Complex in Allston.

- This 2-period time slot is divided between curricular activities and project-related activities.
  - The **curricular activities** include a tutorial on Tuesdays and a weekly challenge on Thursdays.
  - The **project activities** include skill sessions (programmed activities to help you develop skills that are relevant to the projects), as well as unprogrammed time to work on the projects under the guidance of the teaching team.
  - Half the class will work on curricular activities from 9:45 am to 11:00 am and on project activities from 11:15 am to 12:30 pm; the other half will work on these activities in reverse order.
- **There are no other scheduled class activities, sections, or labs.**

**Locations:** All classes are held in the [Science and Engineering Complex](#) at [150 Western Avenue](#), Allston:

- Curricular activities (tutorial/challenge): Room LL2.229
- Skills sessions: Room LL2.223
- Project work: [Active Learning Labs](#) (A.L.L.), Room 1.114

**Examinations:** There are **no** examinations in AP50. See [Assessment](#).

**Enrolling:** Due to occupancy limits of the Active Learning Labs, the course enrollment is capped at 160. To register for AP50, add the course to your Crimson Cart on [my.harvard](#), explaining what previous physics course(s) you have taken and why you want to take AP50. (Note: People who complete AP50A receive priority access to AP50B.)

**Continue** to the [Course Orientation](#) pages.