10 Distinct MOOCs:
- 6 with Coursera
- 4 with edX
Nearly All Caltech Academic Divisions are offering MOOCs

- 2 MOOCs from Biology & Biological Engineering
- 2 MOOCs from Engineering and Applied Sciences
- 1 MOOC from Geological and Planetary Sciences
- 2 MOOCs from Humanities and Social Sciences
- 3 MOOCs from Physics, Mathematics, and Astronomy

+ Jet Propulsion Lab (JPL) ~10 lecturers for 2 courses

http://online.caltech.edu/courses for full list
Student Statistics
AY2012-13 - AY2016-17

>1,700 Caltech student enrollments
via “flipped” or enhanced Caltech courses

~746K online students
~one third% of online enrollees are active (view video, do assignment, etc.)

>15,600 certificates issued

1 - 5% of peak enrollment complete course with high enough grade for a certificate
Enrollment Per Year

- **Enrollment Per Year**
  - Caltech student enrollment
  - Online enrollment (thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>Caltech</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>150</td>
<td>50</td>
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</tr>
<tr>
<td>2016-17</td>
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Caltech MOOC Roles:

• **Vice Provost, Provost, Divisions, & Committees**
  – **Funding and approval**: provide resources and peer reviewed approval for MOOCs.

• **Faculty & TAs**
  – **Develop and test content**: lecture materials, readings and supplementary materials, visuals, assignments, assessments, etc.
  – **Build course**: with support as below.
  – **Set grading policies and formulas**: determine thresholds for certificates.
  – **Moderate forums and content questions**: interact with students during MOOCs.
  – **Incorporate MOOC materials into campus-based courses**: e.g., flipped & enhanced classes

• **CTLO (Center for Teaching, Learning, & Outreach)**
  – **Instructional design**: help faculty and TAs adapt existing materials for online learning, build assessments, apply flipped classroom techniques, assess student learning using online tools, use online discussions effectively.
  – **Platform support & liaison**: assist with platform choice, manage timelines and workflows, liaison with platforms, troubleshoot, monitor discussion boards for issues, train and support faculty and TAs

• **AMT (Academic Media Technologies)**
  – **Multimedia**: custom video production, transcript generation, media uploads to platform, platform-specific media choices
Caltech MOOC Process

Call for Proposals from Provost’s Office

- Informational discussions - ideas and examples
- Discuss & Obtain Division Chair Approval
- Consult w/ CTLO & AMT about proposal details

SUBMIT WRITTEN PROPOSAL TO VICE PROVOST, CC DIVISION CHAIR

(Online) Curriculum Committee
Reviews proposals for:
- Representative of Caltech
- Level, Subject Matter, Plan

Provost’s Office:
Reviews proposals for:
- Impact on Caltech Education
- Budget, Support, Scheduling

Develop detailed budget & timeline, w/ CTLO, AMT & Vice Provost Input

FORMAL APPROVAL

Work w/ CTLO and AMT to prepare, launch, run, and follow-up on your MOOC
MOOC Components

- **Integrated course plan**
  - Everything has a purpose – important for online learning.
- **Subject Matter: Videos & Readings**
  - Videos usually 12 minutes (+/-) long: each has strong learning-oriented theme.
  - Grouped into modules: larger topics.
- **Assessments**
  - Interactively check of understanding: embed in videos or intersperse with content.
  - Auto-graded quizzes, problem sets/exercises, exams: multiple choice, short answer, numerical entry, mathematical expression, computer code.
  - Peer-reviewed written/media assignments: students use instructor-designed criteria.
- **Discussion Forums**
  - Student Q&A, TA responses, other discussion.
- **Course Basics**
  - Announcements, schedules, external supporting materials, ability to email all students.
Caltech AMT Approach to MOOC Media

- **Customized** and adapted to faculty & content needs

- **Consistent** style for each course, incorporating Caltech visual styles and logos

- **Flexible delivery** beyond MOOC platforms to meet target learner audience needs (e.g., YouTube, iTunes U)

Filming with live classroom audience

In studio and on location filming

Custom office green screen and tablet setup
Pre-MOOC Timeline: New MOOC, Basic Course Design

0  1  2  3  4  5  6  7

Months Before MOOC Launch

MOOC Proposed
MOOC Budget honed
Online Curriculum Cmttee Approval
Budget Approval: Vice Provost
AMT and CTLO notified
Course timeline approval: Faculty, CTLO, AMT, Vice Prov
Record video teaser and make graphics for landing page.
If required: platform course/instructor agreement
Add course to online.caltech.edu; publicize
Set up and open course landing page
Faculty and TA Training on platform
Appoint and set up TAs in MOOC
Copyright/Fair Use, Export Control review
Assignments/Assessment method design and testing
Video production and workflow testing
Course site set up (policies, organization, etc.)
Prep course materials: minimum two full weeks
Raw video recording: Minimum two full weeks
Plan surveys (if using)

Course Launch

Continue materials and video prep*

*Depending on platform and format, in some cases all course materials must be complete before launch.
Faculty & TA Activities during a MOOC

• **Look at data**: Faculty & TAs are assessing student performance and engagement with MOOC data and making adjustments.

• **Engage in online discussions**: Faculty, with TAs, are monitoring the discussion forums for questions, endorsing helpful student peer responses, and forwarding technical/platform issues to the Caltech support offices.

• **Develop in-class activities**: Some faculty and TAs may be teaching a Caltech “flipped class” or using new methods made possible by the MOOC materials.

• **Troubleshooting with CTLO and AMT**: These offices may contact faculty and TAs while monitoring discussions, examining data, interfacing with platform tech support, and addressing unforeseen issues that may affect the course.