MOOC Proposal Proposal Resources
April 2015

Center for Teaching, Learning, and Outreach (CTLO)
Office of the Provost

Academic Media Technologies (AMT)
IMSS
MOOC Components

- **Videos**
  - 12 minutes (+/-) long: each has strong learning-oriented theme.
  - grouped into modules: larger topics.

- **Assessments**
  - opportunities for interactive checking of understanding: embedded in videos or associated with any 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.

- **Wiki/Web Pages**
  - Instructor and/or Student content

- **Course Basics**
  - Announcements, schedules, external supporting materials
Caltech Support: Before, During, & After MOOCs

• **CTLO**
  – **Instructional Methods/Design**: adapting materials for online learning, flipped classroom techniques, assessing student learning w/ online tools, TA training, online discussion methods. Cassandra Horii, Director: cvh@caltech.edu; Holly Ferguson, Program Manager: hollyf@caltech.edu.

• **AMT**
  – **Multimedia**: custom video production, transcript generation, media uploads to platform. Leslie Maxfield, Director: lmm@caltech.edu.

• **CTLO + AMT**
  – **Platform & tech support**: platform choice, manage timelines and workflows, liaison with platforms, troubleshoot bugs, monitor discussion boards for issues, assist faculty.
Course Launch
Plan surveys (if using)
Raw video recording: Minimum two full weeks
Prep course materials: minimum two full weeks
Course site set up (policies, organization, etc.)
Video production and workflow testing
Assignments/Assessment method design and
Copyright/Fair Use review
Appoint and set up TAs in MOOC
Faculty and TA Training on platform
Set up and open course landing page
Add course to online.caltech.edu; publicize
If required: platform course/instructor
Record video teaser and make graphics for
Course timeline approval: Faculty, CTLO, AMT,
Online Curriculum Cmttee Approval
Budget Approval: Vice Provost
AMT and CTLO notified
MOOC Proposed
MOOC Budget honed
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Pre-MOOC Timeline: New MOOC, Basic Course Design

Months Before MOOC Launch

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MOOC Budget honed
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Faculty Activities while a MOOC is Running

• **Develop materials:** When a new MOOC launches, faculty may still be developing material for the second half of the course, including video/media, quizzes, assessments, etc.

• **Look at data:** Faculty are assessing student performance and engagement with MOOC data, and adjusting content.

• **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 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 while monitoring discussions, examining data, interfacing with platform tech support, and addressing unforeseen issues that may affect the course.
Supplementary Caltech MOOC Info

Follows:

• Platforms
• Participation
• Numbers

Current & Recent MOOCs

http://online.caltech.edu/courses
MOOC Platforms

- April 2012  Caltech’s own – *no other option!*
- July 2012  + Coursera
- Nov 2013  + edX
- Jan 2015  + Coursera On-Demand

Also delivering content via:
- YouTube, iTunes U, Caltech websites (public)
- Moodle (internal only)
Divisions + Faculty

participating in MOOCs so far

- BBE   Grant Jensen, Henry Lester
- EAS   Yaser Abu-Mostafa
- GPS   Mike Brown
- HSS   Jaksa Cvitanic, Antonio Rangel
- PMA   George Djorgovski
- JPL   ~10 lecturers for 2 courses

+ Additional faculty interest, exploration, & use of online elements in Caltech-only courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Division</th>
<th>Sessions</th>
</tr>
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<tbody>
<tr>
<td>Learning from Data</td>
<td>EAS</td>
<td>5 (3 custom; 2 edX)</td>
</tr>
<tr>
<td>Drugs and the Brain</td>
<td>BBE</td>
<td>2 (Coursera)</td>
</tr>
<tr>
<td>Principles of Economics with Calculus</td>
<td>HSS</td>
<td>3 (1 Coursera → 2 edX)</td>
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<tr>
<td>Galaxies and Cosmology</td>
<td>PMA</td>
<td>3 (Coursera)</td>
</tr>
<tr>
<td>Science of the Solar System</td>
<td>GPS</td>
<td>2 (Coursera)</td>
</tr>
<tr>
<td>Evolving Universe</td>
<td>PMA</td>
<td>1 (edX; → Coursera on Demand)</td>
</tr>
<tr>
<td>Caltech-JPL Summer: Big Data Analytics</td>
<td>PMA/JPL</td>
<td>1 (Coursera; → On Demand)</td>
</tr>
<tr>
<td>Pricing Options with Mathematical Models</td>
<td>HSS</td>
<td>1 (edX)</td>
</tr>
<tr>
<td>Introduction to Cryo-EM</td>
<td>BBE</td>
<td>(Coursera On Demand)</td>
</tr>
<tr>
<td>Methods of Computational Science</td>
<td>PMA</td>
<td>In Dev. (Coursera On Demand) (cont. of Big Data Analytics)</td>
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Students | Certificates | $$

~1,000 Caltech enrollments - via flipped Caltech courses

488K Online enrollments

>2M Views on YouTube + iTunes U

12,582 Certificates/Statements of Completion*
*Faculty determine level of achievement required for certificates/statements.

200 verified certificates** w/ ~90% completion rate
**Paid version of certificate, in which student identity is checked and can be verified with the MOOC platform.
MOOC Overview: 4 Years

Caltech MOOCs: FY 2012 – 2015 (as of April 2015)

- Online Enrollment (left axis)
- Caltech enrollment (right axis)

FY 2012: 1 Session
FY 2013: 5 Sessions
FY 2014: 7 Sessions
FY 2015: 5* Sessions to date; + 3 in prep