



Undergraduate Research at Harvey Mudd

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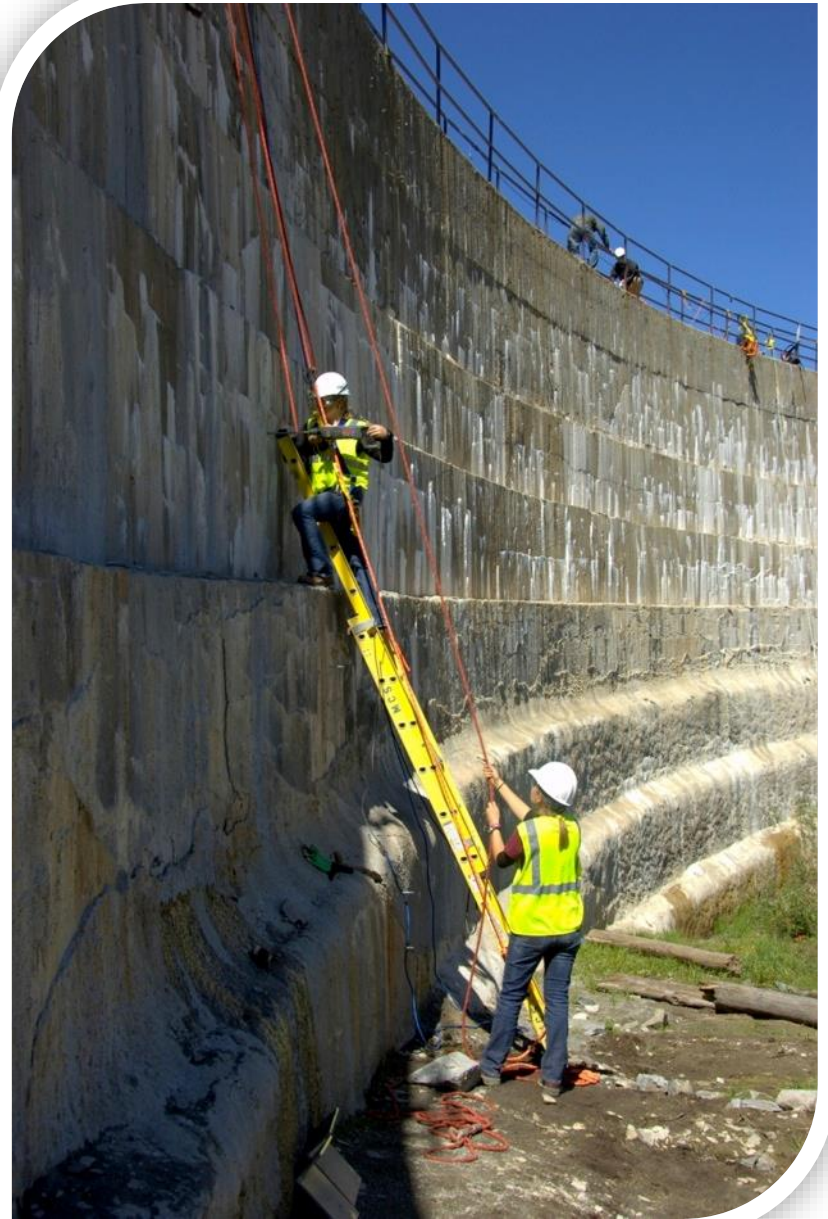
Research Experience

- Learning by doing



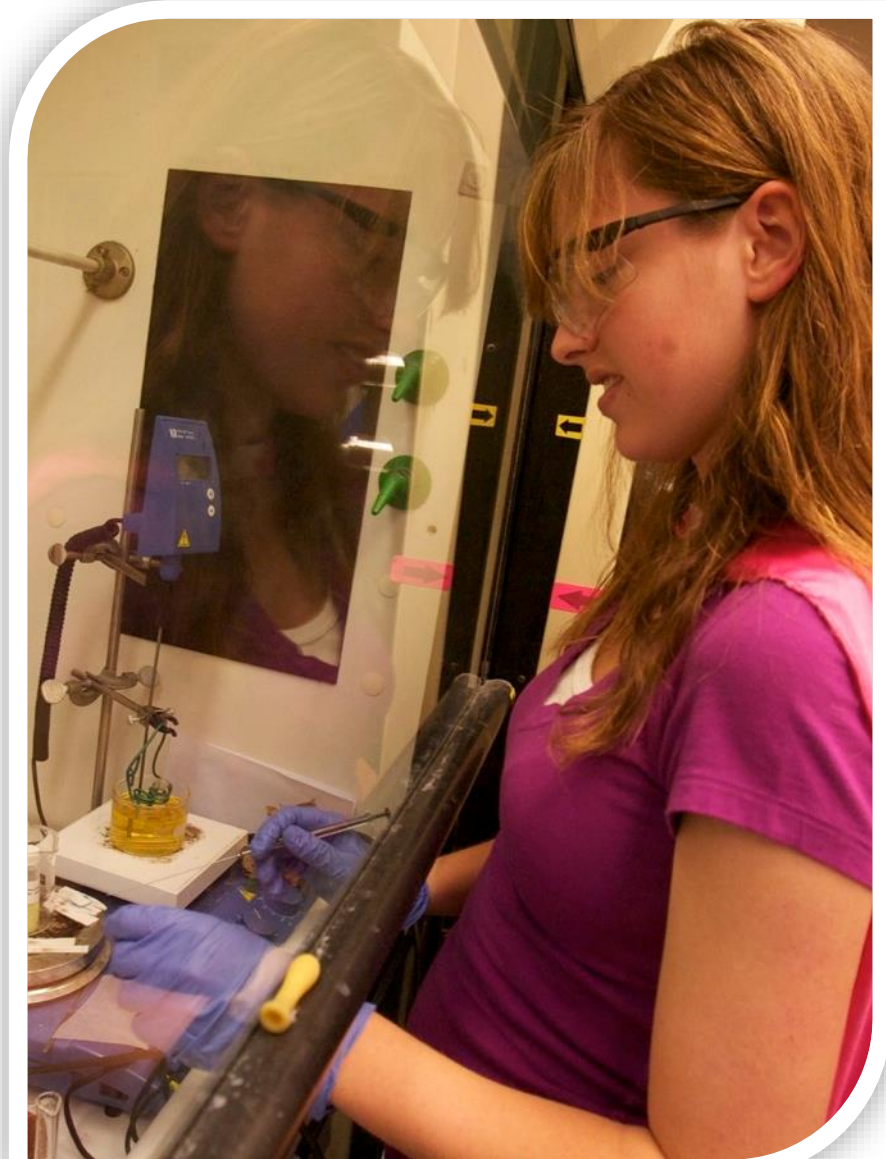
Research Experience

- Learning by doing
- Problem solving skills



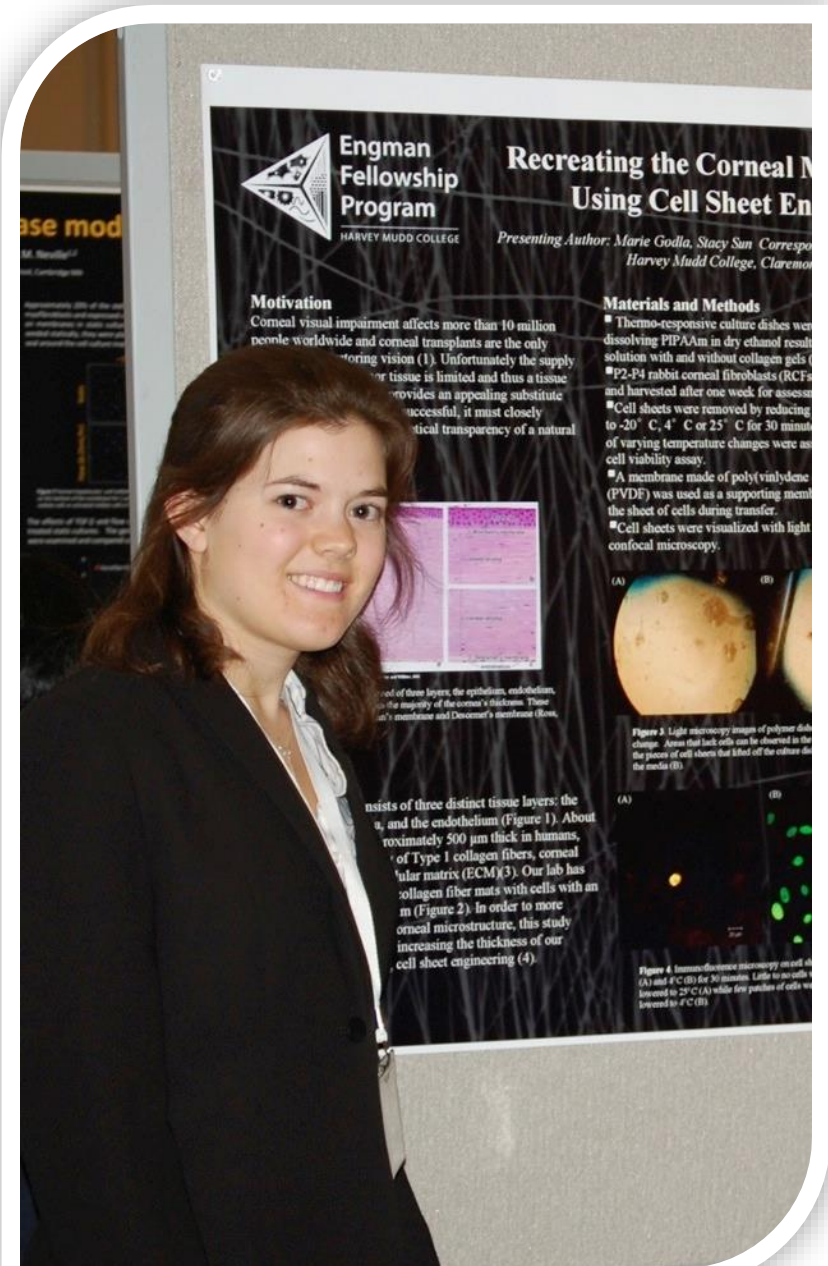
Research Experience

- Learning by doing
- Problem solving skills
- Technical skills



Research Experience

- Learning by doing
- Problem solving skills
- Technical skills
- Communication and leadership skills



Research Experience

- Learning by doing
- Problem solving skills
- Technical skills
- Communication and leadership skills
- Advantage when seeking a job or applying to graduate school



Undergraduate research at HMC:

Who?

When?

How?



High participation in faculty-mentored student research

Which of the following have you done before you graduate? Work with faculty member on a research project.

	HMC	Carnegie	NSSE overall
Overall	73%	45%	24%
By Discipline:	HMC	Carnegie	NSSE overall
Math&CS	78%	54%	25%
Engineering	56%	62%	34%
Natural Sciences	97%	65%	52%

Carnegie Classification = highly selective private-nonsectarian liberal arts colleges

NSSE = National Survey of Student Engagement



Olivia Warren (HMC '14) studied membrane transport and transdermal drug delivery with Prof. Nancy Lape in the engineering department



Alistair Dobke (HMC '14) and the L.A.I.R. team led by Prof. Chris Clark, developed a graph based approach for multiple autonomous underwater robots to coordinate



Mentored by atmospheric chemist Prof. Lelia Hawkins, **Lydia Jahl** (HMC '14) measured the organic carbon and organic nitrogen content of fog water in Claremont, CA and Bologna, Italy.

Academic year: A variety of paths into research

- Senior thesis
 - Biology
 - Chemistry
 - Math (or clinic)
 - Physics (or clinic)
- Faculty-led research for pay or credit
- Research classes



Academic Year: Presentations Days



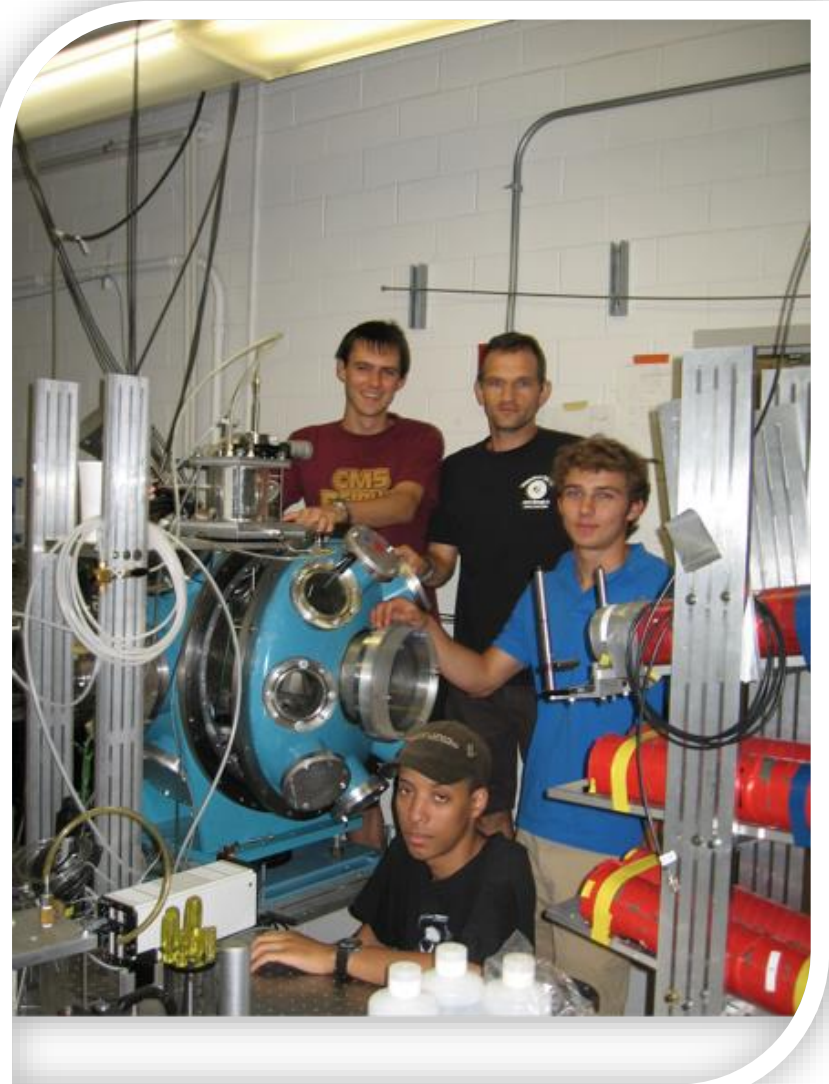
A Celebration of Student Research

**Presentation Days
May 5 and 7, 2014**

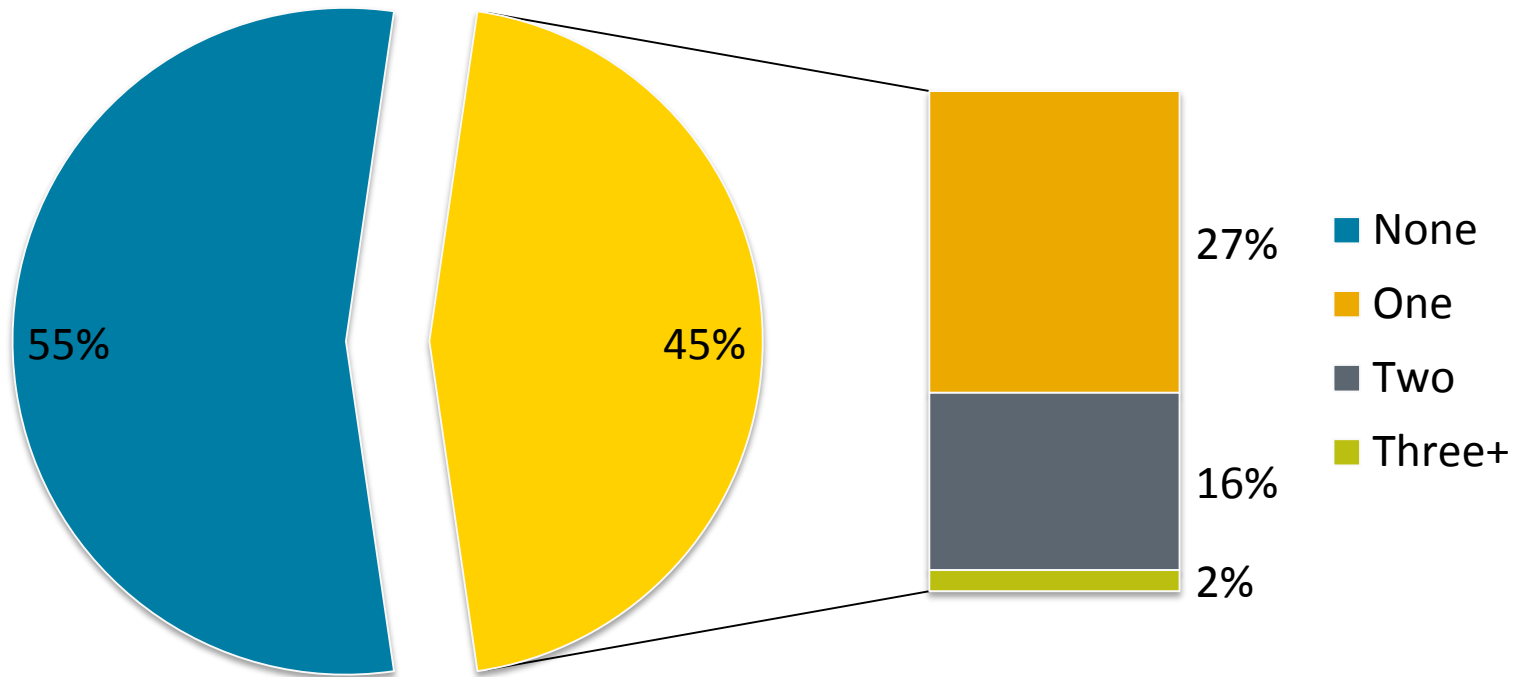
- Last three days of classes devoted to celebrating student work
- More than 200 student presenters

Summer: A time to focus on research

- 10 week immersive experience
- \$5000 stipend
- Close to 200 students work with 40+ faculty per summer
- All departments well represented



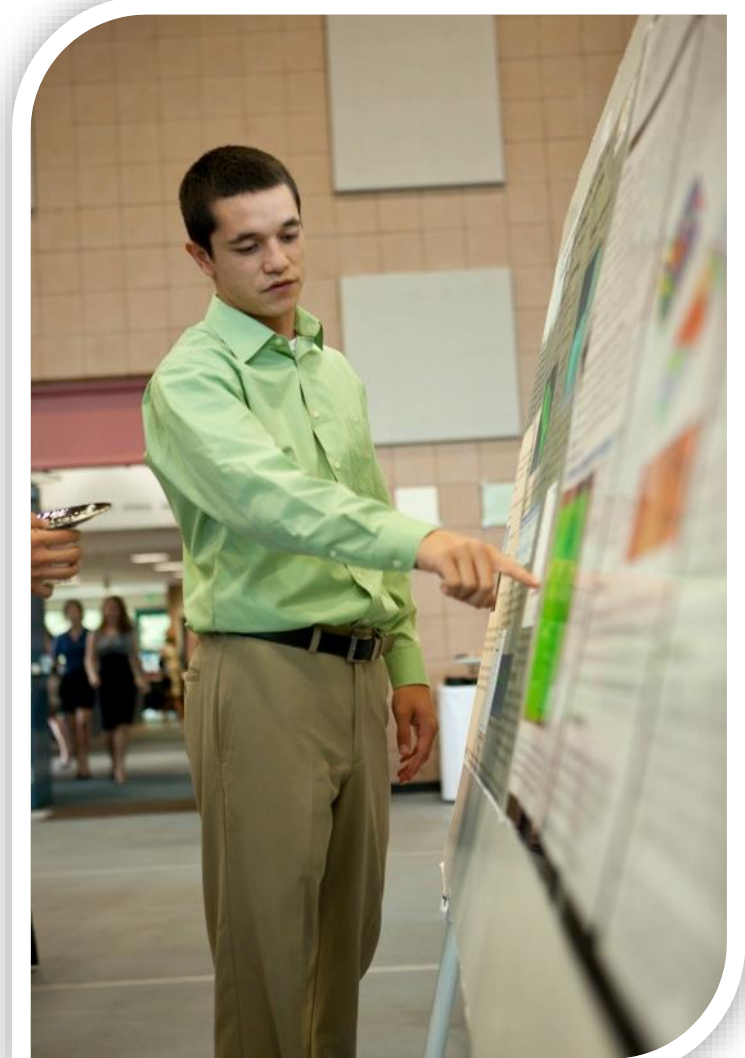
About half of graduating senior have had at least on summer research experience at Harvey Mudd



Source: Senior OCS Exit Survey, 2010-2013

Summer: Beyond the Lab

- Safety and hazardous materials training
- Ethics and the responsible conduct of research
- Information literacy and library resources
- Stauffer Talks and Lab Open Houses
- Fall poster session



External Markers of Success : Student Outcomes

- 400+ student co-authored papers in past decade
- NSF Graduate Fellowships:
 - Top liberal arts school in NSF Graduate Fellowships over a recent 10-year period...
 - Harvey Mudd 73
 - Swarthmore 72
 - Williams at 65
 - Awardees over a recent 10-year period, as a fraction of current enrollment...
 - Caltech 12.6%
 - HMC 10.0%
 - MIT 9.1%
 - CMU 1.5%
 - Rose-Hulman 0.5%



Thank you!

