

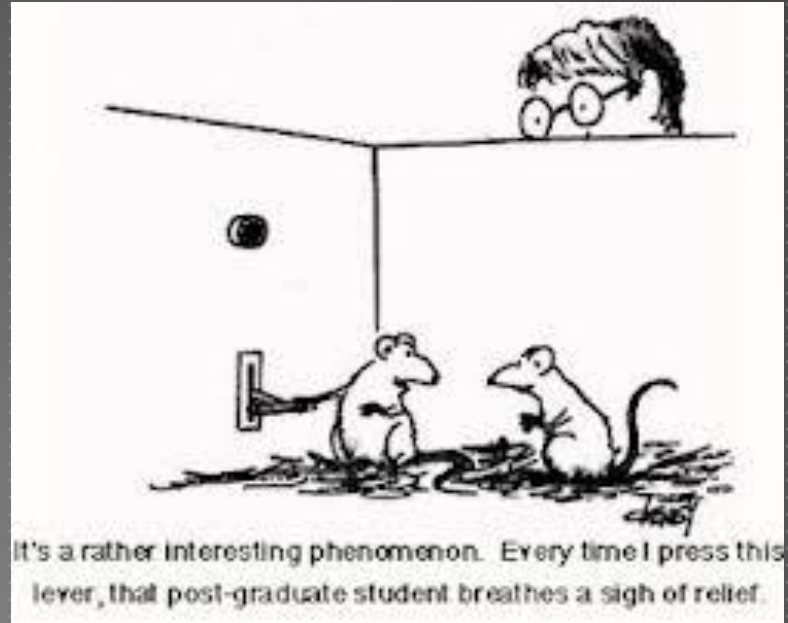
# FINDING AN REU

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# OUTLINE

- ▶ What is an REU?
- ▶ UR – What is It?
- ▶ Closer Look at REUs
- ▶ How do I apply?
- ▶ Advice
- ▶ 3 Vignettes



# WHAT IS AN REU?

- ▶ National Science Foundation (NSF) grant program
- ▶ Open to 4-y colleges, comprehensive universities, and graduate research universities
- ▶ Site may be US higher educational institution or foreign institution/site
- ▶ 8-10 week long
- ▶ undergraduate research program in STEM disciplines
- ▶ Usually summer (May – August)
- ▶ 8-10 students/program

# UNDERGRADUATE RESEARCH (UR) – WHAT IS IT?

- ▶ Council on Undergraduate Research: “An inquiry or investigation conducted by an undergraduate that makes an original intellectual or creative contribution to the discipline.”
- ▶ Chris Bosso and Pam Mabrouk: Undergraduate research is a transformative collaboration between undergraduates and supervising faculty on research that extends knowledge or creative works that offer novel insights. These activities utilize the standard research or creative practices of the relevant discipline with the intent of contributing the resulting original work to the scrutiny of the greater university scholarly and artistic communities.

Wenzel, Thomas J. *CUR Quarterly* 1997, 17, 163.

# WHAT IS UR?

- ▶ Not everyone uses the same definition
  - ▶ Majority (62% of 135 respondents): discovery of new knowledge
  - ▶ 11%: data collection
    - ▶ 38.5% physical chemists
  - ▶ 5%: research doesn't have to be new, it just has to be new to the student
    - ▶ 66.7% physical chemists
  - ▶ 20.2% faculty respondents explicitly included publication or presentation in their definition
    - ▶ Majority included disclaimer – publication not normal outcome of UR

Pelligrini, J.; Mabrouk, P.A., unpublished results.

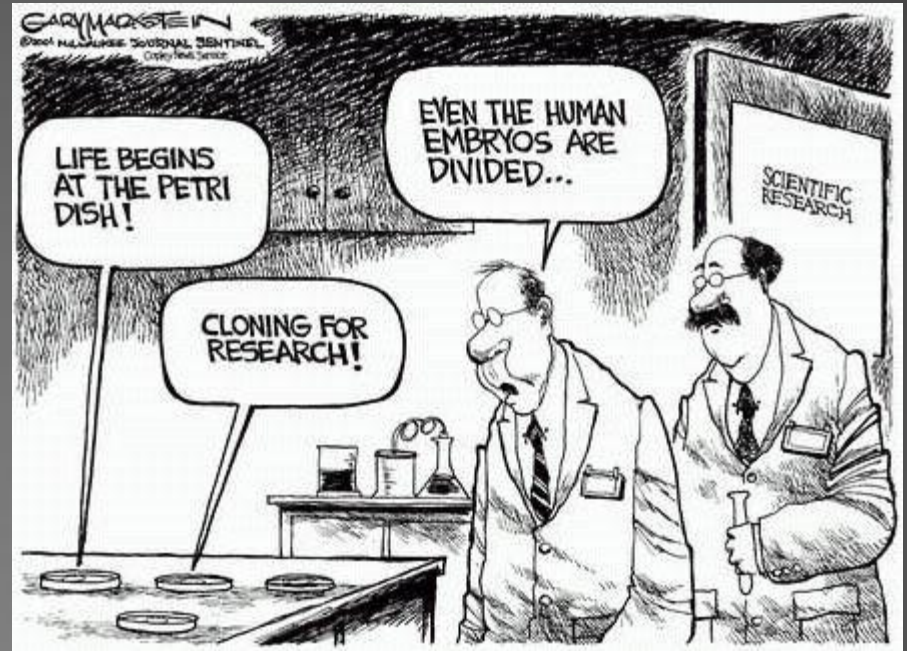
# WHY AN REU?

- ▶ Travel
- ▶ Meet other students, faculty who share your interests
- ▶ Have fun
- ▶ Opportunity to gain hands-on experience
- ▶ Could get published
- ▶ Find out what you like and are good at
- ▶ Find out what don't like and what you are not good at
- ▶ Find a graduate research program
- ▶ Enhance likelihood of being admitted to the program of your choice
- ▶ Enhance likelihood of winning fellowships
- ▶ Find a graduate research advisor/mentor



# REU PROGRAMS USUALLY PROVIDE

- ▶ Stipend ca. \$4-5K
- ▶ Travel to/from site
- ▶ Housing (think dorm)
- ▶ Subsistence (maybe)



# PARTICIPANT ELIGIBILITY

- ▶ Because program funded by federal money for US citizens or permanent residents
- ▶ Graduating seniors not normally eligible
- ▶ May require certain GPA (ca. 3.0)
- ▶ May require certain academic preparation



# DIFFERENT ENVIRONMENTS

- ▶ College – may provide better mentoring and more student-student interaction
- ▶ University – opportunity to see potential graduate school and work with its faculty
- ▶ Work on different research problems
- ▶ Access to instrumentation not available at home
- ▶ Different faculty
- ▶ Different location

# INTERNATIONAL REUS: THAI REU

- ▶ UC Santa Cruz
- ▶ See URL:  
<http://thaireu.chem.ucsc.edu/index.html>
- ▶ One of the longest running REUs
- ▶ Knowing foreign language not a requirement
- ▶ See URL:  
<http://www.universityofcalifornia.edu/news/article/5399>



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Chulabhorn Research Institute

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*King of Thailand*

Announcement

**>> Upcoming Activities**

- > The 7<sup>th</sup> Princess Chulabhorn International Science Congress (PC VII)  
New dates:  
[November 29-December 3, 2012](#)

**>> News and Events**

- > ลงศัปรธานสถาบันฯ เสด็จเยือนสาธารณรัฐประชาชนจีน ระหว่างวันที่ 18-29 ธันวาคม 2555
- > ประกาศ ประกวดราคาจัดจ้าง
- > ประกาศเกียรติคุณจากสภาภษษาชาติไทย

**Welcome to Chulabhorn Research Institute**

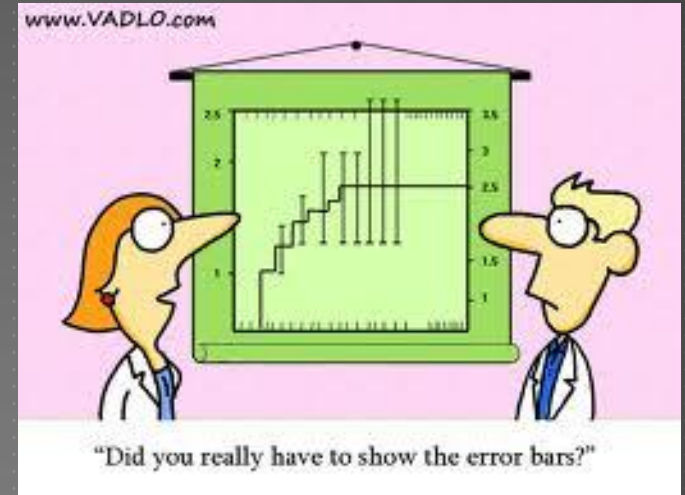
**President of the Institute**  
Professor Dr. Her Royal Highness Princess Chulabhorn Mahidol, President of the Chulabhorn Research Institute.  
[read more](#)

**Research**  
Research activities are conducted in 9 research laboratories as individual research projects or are organized as integrated research programs drawing on interrelated work in the Institute's laboratories.  
[read more](#)

**Academic Activities**  
The Institute places a strong emphasis on capacity building for human resource development and provides a wide range of training programs in science and technology.  
[read more](#)

# COMMON PROGRAMMATIC ELEMENTS

- ▶ Social events
- ▶ Training (safety, ethics)
- ▶ Seminars
- ▶ Opportunity to engage in undergraduate research
- ▶ Final Poster session/oral presentation
- ▶ May be opportunity to present at professional conference (poster/oral talk) (travel grants available; Biology and Chemistry)



# HOW DO I FIND AN REU?

- ▶ WebGURU <http://www.webguru.neu.edu>
- ▶ NSF website [http://www.nsf.gov/crssprgm/reu/reu\\_search.cfm](http://www.nsf.gov/crssprgm/reu/reu_search.cfm)
- ▶ NASA <http://usrp.usra.edu/students/>
- ▶ NOAA  
[http://www.education.noaa.gov/Special\\_Topics/Student\\_Opportunities.html](http://www.education.noaa.gov/Special_Topics/Student_Opportunities.html)
- ▶ EPA <http://www.epa.gov/careers/internships/index.html>
- ▶ USDA  
[http://www.usda.gov/wps/portal/usda/usdahome?navid=INTERN\\_SCHOLAR](http://www.usda.gov/wps/portal/usda/usdahome?navid=INTERN_SCHOLAR)
- ▶ AMS <http://www.ams.org/programs/students/undergrad/undergrad>
- ▶ AAMC  
[https://www.aamc.org/members/great/61052/great\\_summerlinks.html](https://www.aamc.org/members/great/61052/great_summerlinks.html)

# HOW DO I APPLY?

- ▶ Most REU programs have websites
- ▶ Complete application
- ▶ Essay - Why this particular program? Why are you the best candidate?
- ▶ 2 Letters of recommendation
- ▶ Copy of transcript (unofficial may be OK; depends on site)

# ADVICE

- ▶ Do your research on the REU programs you plan to apply to
  - ▶ Don't be afraid to email and/or call program directors
- ▶ Application process is highly competitive
  - ▶ Apply to 3-5 REUs
- ▶ Respect deadlines
  - ▶ Confirm your application is complete
  - ▶ Follow up with your letter writers
- ▶ One size does not fit all
  - ▶ Personalize your essay to each program
    - ▶ Long term career goals?
    - ▶ First choice? Why?

# ADVICE

- ▶ Don't forget "home"
  - ▶ WE have REUs
    - ▶ [Center for High-Rate Nanomanufacturing](#)
    - ▶ [ALERT](#)
  - ▶ Don't be a wall flower – ask a faculty member!
- ▶ Many individual faculty hold NSF grants
  - ▶ These faculty can apply for REU supplements
    - ▶ Same rules: US citizen or permanent residents of the US
    - ▶ Stipend ca. \$5k
    - ▶ Faculty can budget money for materials and supplies for student
    - ▶ No travel, housing, or subsistence (local)

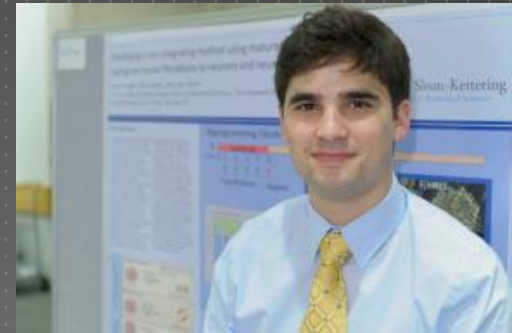
# ADVICE

- ▶ Volunteer (international students)
- ▶ Stipend (ca. \$1-5,000/summer)
  - ▶ Provost's Office
    - ▶ Projects
    - ▶ Travel to conferences (presentations)
  - ▶ Honors Program
    - ▶ Projects
    - ▶ Travel to conferences (presentations)
- ▶ Academic credit
  - ▶ Thesis
  - ▶ Independent Study



# JOSE OROZCO, '12 BIOCHEMISTRY & MATHEMATICS

- ▶ American Heritage School
- ▶ Plantation, Florida
- ▶ Enrolled as Biology major
- ▶ Currently: NIH
- ▶ Start: UR with Erin Cram (Biology) 5 semesters '08-'11
- ▶ Summer '09 UR with Paul Schedl (Princeton, molecular biology) gene regulation
- ▶ Summer '10 NIH Summer Internship program with Anton Jetten cancer research
- ▶ Summer '11 Memorial Sloan-Kettering Cancer Center with Lorenz Stutter stem cell research
- ▶ Matz co-op fellowship spring '10
- ▶ Senior thesis: Mechanotransduction in *C. elegans*



# ANTHONY PAN, '13 CHEMISTRY

- ▶ Boston Latin Academy
- ▶ Allston, MA
- ▶ Enrolled as Chemistry major
- ▶ Currently: Summer-fall '12 international co-op as science TA at International School of Bremen
  - ▶ Anthony's blog: <http://anthonypannu.tumblr.com/>
- ▶ Spring '10 UR with Pam Mabrouk biochemistry
  - ▶ Fall 2010 ACS National Mtg (poster)
- ▶ 2 co-ops in Boston at Tetrphase in analytical
- ▶ Fall '11 study abroad in Germany *Freie Universität Berlin*
- ▶ '10-'12 Husky Ambassador (tour guide and student leadership council)



Erotic Kartoffel (Erotic Potato)



# EMILY BATT, '12 PHYSICS

- ▶ Merrimack High School
- ▶ Merrimack, NH
- ▶ Enrolled as Undeclared
- ▶ Currently: Fikst (accepted into masters in engineering program at University of Cambridge)
- ▶ Directed study on 17<sup>th</sup> century monks with Prof. Jeffrey Burds
- ▶ Chose physics major as sophomore
- ▶ '09 NSF REU at Oregon State U.
  - ▶ Ocean Conference '10
- ▶ '09-'10 research assistant with ADVANCE
- ▶ '10 Steamboat scholar (Dana Farber Cancer Institute)
- ▶ '11 co-op at Fikst Product Development (Woburn)
- ▶ Honors: 2012 COS Co-op Expo award, 2012 Co-op award, 100 most influential seniors, 2012 student commencement speaker

