

# ACS International Opportunities for You

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# Christine Dunne

Graduate Student, University of Colorado



Christine completed her Bachelors of Science in Chemistry at Northeastern University in 2013. During her time at Northeastern, she was the president of the Northeastern University Student Affiliates of the American Chemical Society (NUSAACS), and was the acting Northeastern University representative for the Northeast Section of the Young Chemist Committee (NSYCC).

Christine also earned the ACS Student Leadership Award in August 2012, which allowed her to attend the ACS Leadership Conference in Fort Worth, TX. In April of 2012, she was invited to attend the International Conference of Young Chemists (ICYC) at the University of Jordan. Christine is currently working toward a graduate degree at Colorado State University at Fort Collins.

# **[www.acs.org/ic](http://www.acs.org/ic)**

The **ACS International Center™** is a program managed by the **ACS Office of International Activities** under the imprimatur of the **ACS Committee on International Activities**.

The **ACS IC** is an online clearinghouse of information on international exchange programs for high schoolers, undergraduates, graduates, postdocs, faculty, and professionals from across the globe seeking more information for their international achievement. The website currently contains information on over 400 unique programs in 16 geographies, sorted across 6 levels of professional experience.

visit **[www.acs.org/ic](http://www.acs.org/ic)** or e-mail **[ic@acs.org](mailto:ic@acs.org)**.

## Steven Meyers, Ph.D.

Program Manager, Office of International Activities, American Chemical Society



Steve has worked at ACS since 2011 managing international exchange and training opportunities for students, fellows, faculty, and industrial chemical scientists and engineers. Before joining ACS, he served as a project manager for an IUPAC/NSF transnational funding call in polymer chemistry and worked as a research scientist at start-up companies.

# ACS BY THE NUMBERS



**>163,000** Members

**186** Local Sections

**32** Technical Divisions

**75%** chemistry degree

60% industry

30% academia

10% students

**30,000** cumulative  
attendance at two  
national meetings



**42** peer-reviewed  
journals

**40,000** yearly  
published articles

**70 million** article  
downloads

**300 million** annual  
*C&EN* page views



**>3.7 billion** chemical  
property records

**>68 million** organic &  
inorganic substances  
in registry

# ACS INTERNATIONAL PRESENCE



**25,000** international members (15% of membership)

**100+** countries represented by members

**200** projects/programs have an international component

**4,500** yearly international meeting attendees



**68%** of articles are authored by international researchers

**117** ACS editors work outside the U.S.

**105** countries had institutions that subscribed to ACS publications



**50%** of content originates internationally

# ACS INTERNATIONAL ACTIVITIES

[www.acs.org/international](http://www.acs.org/international)



## Programs

PITTCON 2014

Festival de Química

Global Imperatives Initiative (Gii)

→ **International Research Experiences for Undergraduates (IREU)**



ACS International Center  
[www.acs.org/ic](http://www.acs.org/ic)

## Partnerships

Alliances

Chapters



## Information Sharing

Science & Human Rights

→ **ACS International Center**

Technical Symposia



# Why study internationally?

*“Connecting students across borders is one of the most effective ways of building understanding between nations.”*

**—former U.S. Secretary of Defense Robert Gates**

*“To be on track today for college and careers, students need the 21st century skills that are so vital to success in the global economy.”*

**—U.S. Secretary of Education Arne Duncan**



# WHY STUDY INTERNATIONALLY?

- Global Gain
  - Solve global challenges (energy, health, climate, food/water, security)
  - Increase global understanding (science diplomacy)
- National Gain
  - Increase national knowledge base and competitiveness
- Personal Gain
  - Network/collaborate
  - Develop respect for other cultures/languages
  - Learn new scientific perspectives
  - Builds character (sense of accomplishment, independence)
  - Fun experience
  - **Benefits your career**



# INTERNATIONAL ENGAGEMENT

Undergraduates: 1% engage in a study abroad endeavor (even as short as 8-weeks), only 12-13% of that group are from STEM fields<sup>1</sup>

Graduates Students: 1% engage in an international experience<sup>2</sup>

Faculty: 30% of U.S. faculty are “active in research, collaborated, and/or co-published with colleagues worldwide”<sup>3</sup>

- U.S. continues to rank last among 16 peer nations in this regard<sup>4</sup>



<sup>1</sup>Trends in U.S. Study Abroad. NAFSA: Association of International Educators.

<sup>2</sup>More Graduate Students Consider Study Abroad (March 16, 2011). Christopher J. Gearon, U.S. News & World Report.

<sup>3</sup>The International Mobility of the American Faculty - Scope and Challenges: 2010 Edition. Ling Gao LeBeau, IUPSA Journal.

<sup>4</sup>The International academic profession - Portraits of fourteen countries (1992). P.G. Altbach & L.S. Lewis, The Carnegie Foundation for the Advancement of Teaching.

# EMPLOYMENT OPPORTUNITIES

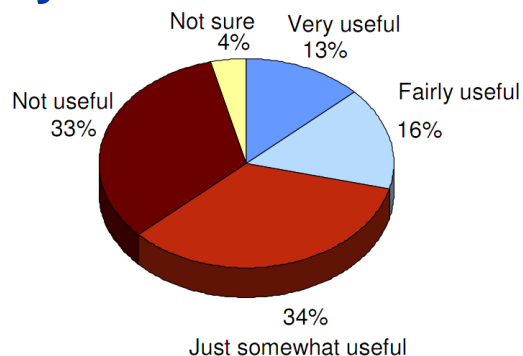
AAC&U Survey 2008 of 301 employers at companies with at least 25 employees and at least 25% of new hires hold a 4-year degree

	Mean Rating	Very Well Prepared (8-10 rate)	Not Well Prepared (1-5 rate)
Teamwork	7.0	39	17
Ethical Judgment	6.9	38	19
Intercultural Skills	6.9	38	19
Social Responsibility	6.7	35	21
Quantitative Reasoning	6.7	32	23
Oral Communication	6.6	30	23
Self-knowledge	6.5	28	26
Adaptability	6.3	24	30
Critical Thinking	6.3	22	31
Writing	6.1	26	37
Self-direction	5.9	23	42
Global Knowledge	5.7	18	46

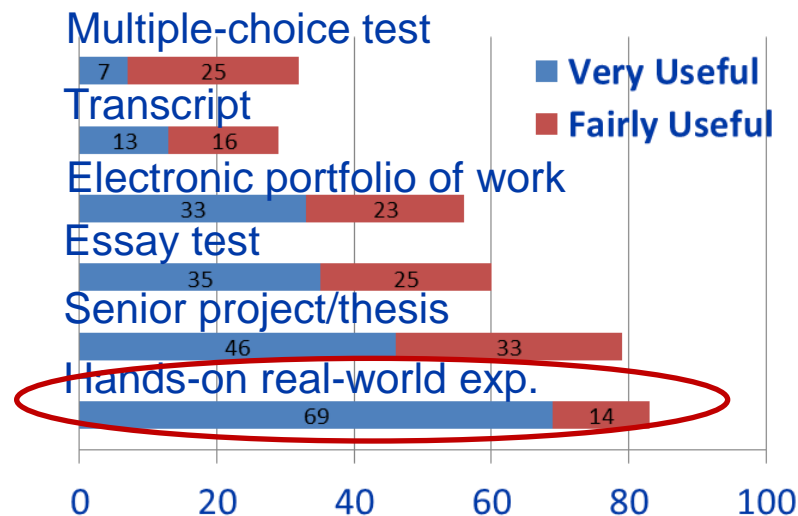
Ratings on 10-point scale: 10=recent college graduates are extremely well prepared on each quality to succeed in entry level position

# EMPLOYMENT OPPORTUNITIES

## Employers value a transcript?



## What is useful to employers?



## TIP #1



**Having international and/or applied experience can help in a job search.**

**“I would love to  
go abroad but...**

**it won't fit in my schedule  
it is too expensive  
I don't speak another language**

# Why not the



## REU HISTORY

- 1959: NSF creates URPP (Undergraduate Research Participation Program)
- 1969: More than 30,000 students had participated
- 1982: URPP canceled
- 1987: NSF creates REU (Research Experiences for Undergraduates)
- 2004: There were about 65 Chemistry REUs serving 700 students
- 2013: There are 751 NSF supported REU sites; 4 Chemistry/Materials Science REUs are international





# REU CHEMISTRY DEMAND

## In 2004<sup>1</sup>:

- 3,005 U.S.-wide REU applicants to 65 chemistry-focused sites
  - 55% of applicants came from a primarily undergraduate institution (PUI)
  - 66% of students only applied to one program
- 700 students (23%) became an REU participant
  - 62% of participants came from a PUI
  - 84% of REU offers were to unique students

## ACS IREU:

- 74 students sent abroad from 2007-2010
- Success rates on the order of 5-15%

<sup>1</sup>"What is the Demand for Undergraduate Research? A Multi-year Study of the NSF REU Chemistry Applicant Pool," Devin M. Coon, Randolph S. Duran, David R. Haines, and Joseph J. Grabowski. [[http://chemed.chem.pitt.edu/joeg/documents/2006-09\\_OnePage\\_Stats.pdf](http://chemed.chem.pitt.edu/joeg/documents/2006-09_OnePage_Stats.pdf)]

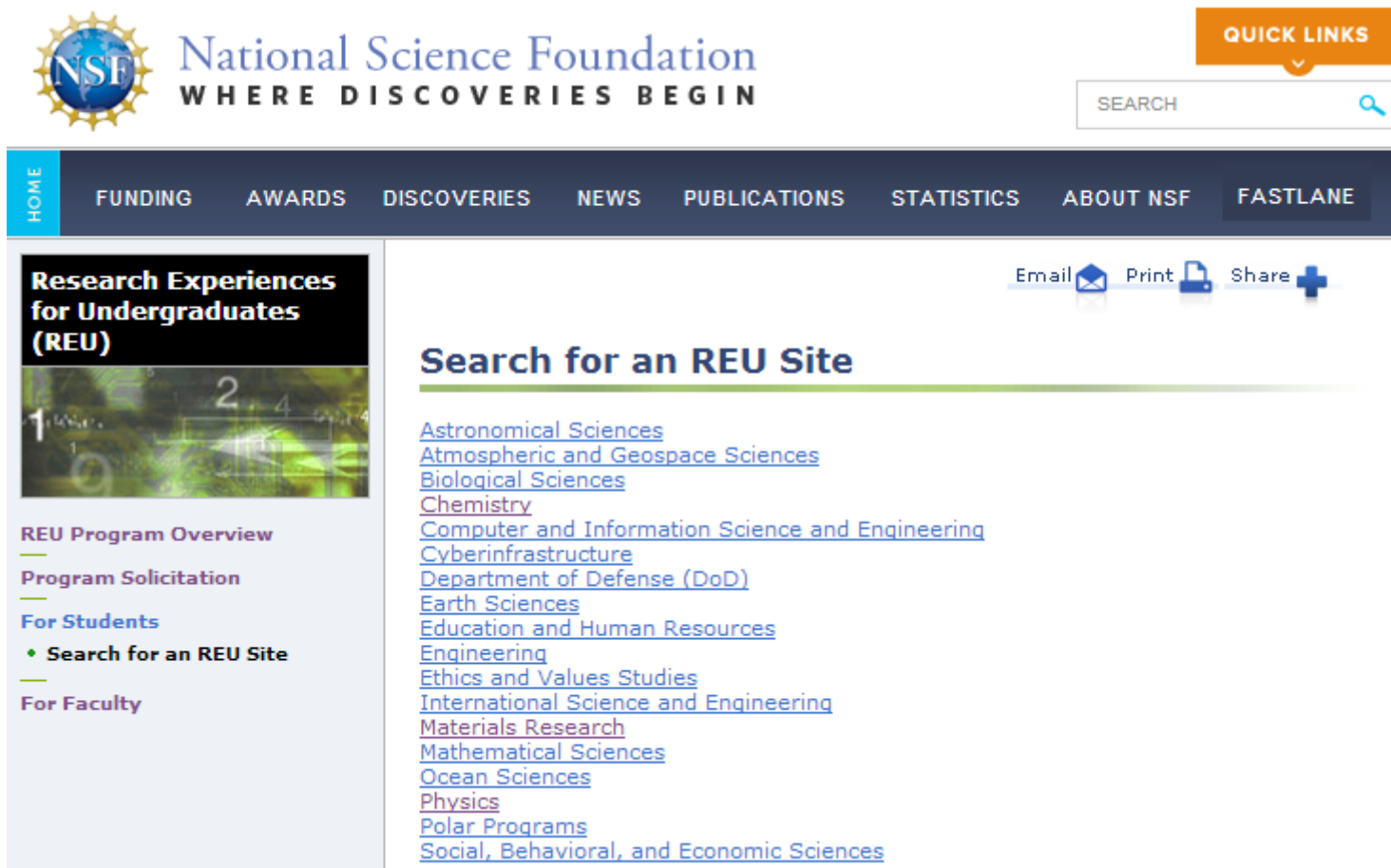
## TIP #2



**Don't put all your eggs in one basket.  
Apply, but *only* to the programs you  
feel passionate about.**

# HOW TO FIND OPPORTUNITIES

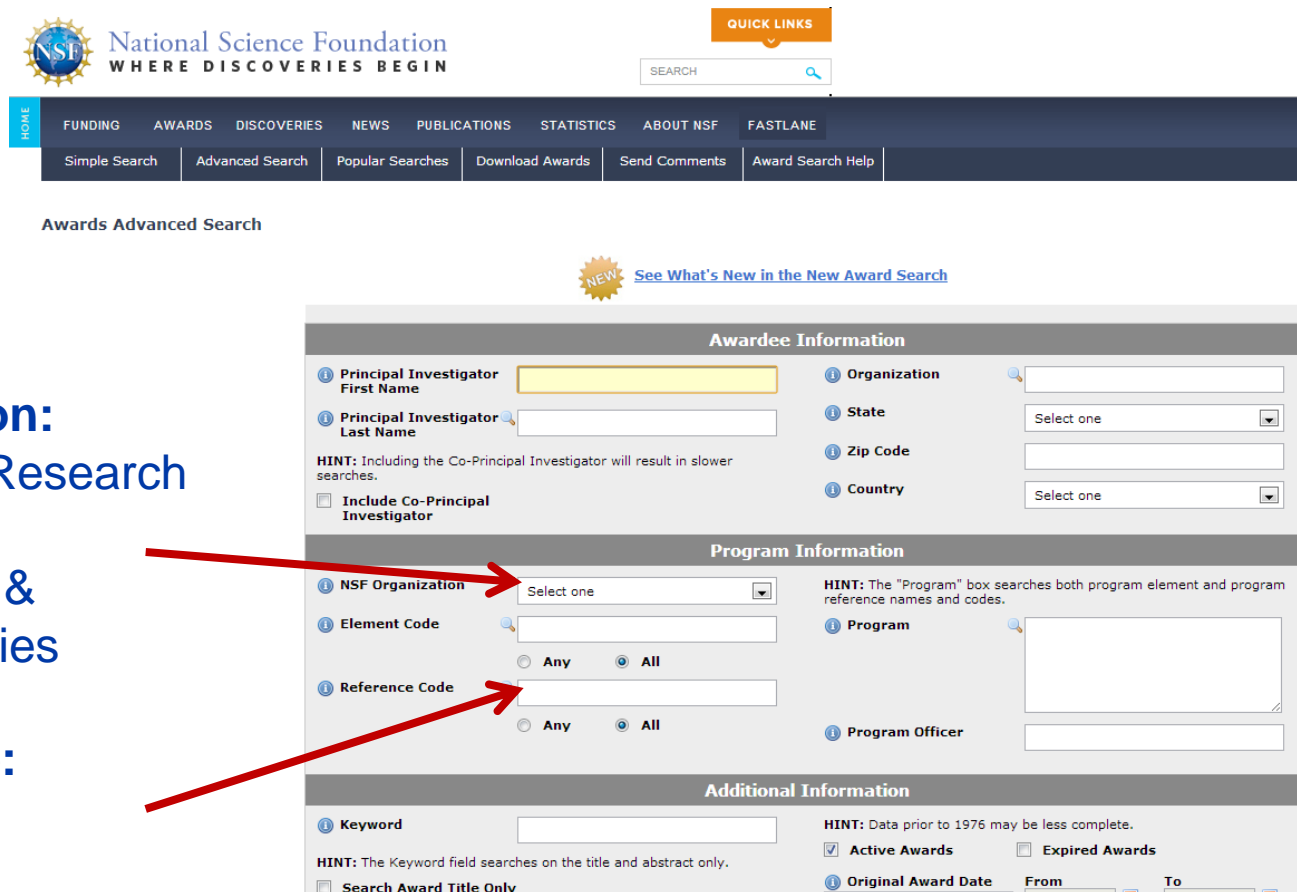
[http://www.nsf.gov/crssprgm/reu/reu\\_search.jsp](http://www.nsf.gov/crssprgm/reu/reu_search.jsp)



The screenshot shows the NSF Research Experiences for Undergraduates (REU) website. At the top is the NSF logo with the tagline "WHERE DISCOVERIES BEGIN". To the right is a "QUICK LINKS" button and a search bar. Below the header is a navigation menu with links: HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. The main content area is titled "Research Experiences for Undergraduates (REU)" and features a sidebar with links: REU Program Overview, Program Solicitation, For Students (with a sub-link "Search for an REU Site"), and For Faculty. The main content area is titled "Search for an REU Site" and lists various scientific fields with hyperlinks: Astronomical Sciences, Atmospheric and Geospace Sciences, Biological Sciences, Chemistry, Computer and Information Science and Engineering, Cyberinfrastructure, Department of Defense (DoD), Earth Sciences, Education and Human Resources, Engineering, Ethics and Values Studies, International Science and Engineering, Materials Research, Mathematical Sciences, Ocean Sciences, Physics, Polar Programs, and Social, Behavioral, and Economic Sciences. Social media sharing icons for Email, Print, and Share are also present.

# HOW TO FIND OPPORTUNITIES

<http://www.nsf.gov/awardsearch/advancedSearch.jsp>



**National Science Foundation**  
WHERE DISCOVERIES BEGIN

QUICK LINKS

SEARCH

HOME FUNDING AWARDS DISCOVERIES NEWS PUBLICATIONS STATISTICS ABOUT NSF FASTLANE

Simple Search Advanced Search Popular Searches Download Awards Send Comments Award Search Help

Awards Advanced Search

**NEW** See What's New in the New Award Search

**Awardee Information**

Principal Investigator First Name

Principal Investigator Last Name

HINT: Including the Co-Principal Investigator will result in slower searches.

☐ Include Co-Principal Investigator

Organization

State

Zip Code

Country

**Program Information**

NSF Organization

Element Code

Reference Code

HINT: The "Program" box searches both program element and program reference names and codes.

Program

Program Officer

**Additional Information**

Keyword

HINT: The Keyword field searches on the title and abstract only.

☐ Search Award Title Only

HINT: Data prior to 1976 may be less complete.

☒ Active Awards ☐ Expired Awards

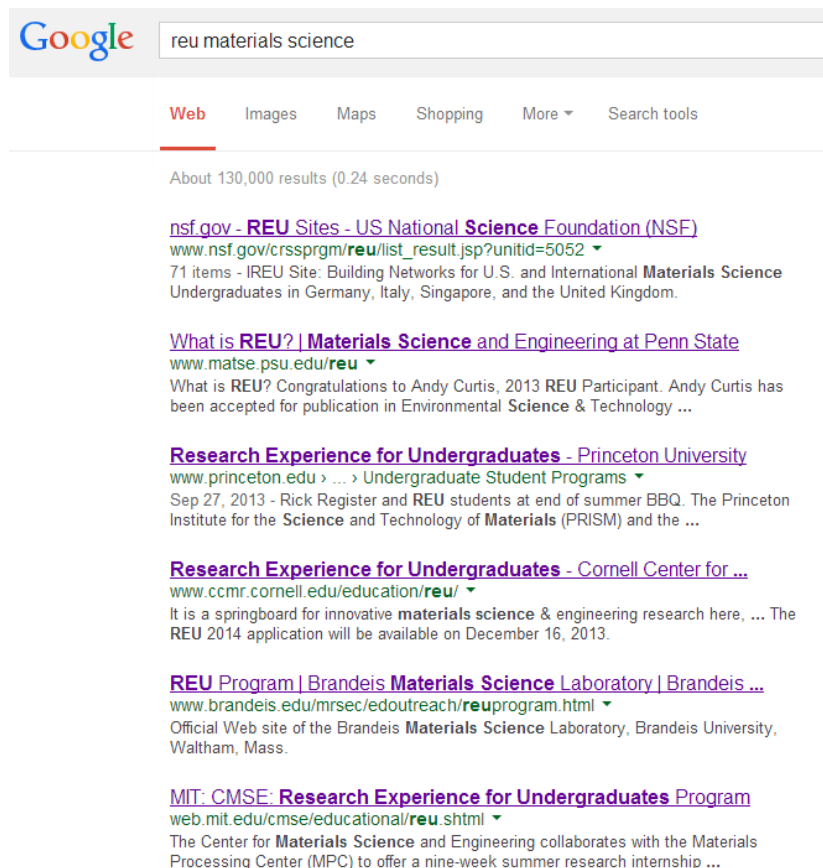
Original Award Date From To

**NSF Organization:**  
**DMR:** Materials Research  
**CHE:** Chemistry  
**IIA:** International & Integrative Activities

**Reference Code:**  
**9250:** REU  
**7639:** IRES

# HOW TO FIND OPPORTUNITIES

## Web Search



Google search results for "reu materials science".

About 130,000 results (0.24 seconds)

**Web** Images Maps Shopping More Search tools

[nsf.gov](http://nsf.gov) - **REU Sites - US National Science Foundation (NSF)**  
[www.nsf.gov/crssprgm/reu/list\\_result.jsp?unitid=5052](http://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5052)  
 71 items - IREU Site: Building Networks for U.S. and International **Materials Science** Undergraduates in Germany, Italy, Singapore, and the United Kingdom.

**What is REU? | Materials Science and Engineering at Penn State**  
[www.matse.psu.edu/reu](http://www.matse.psu.edu/reu)  
 What is REU? Congratulations to Andy Curtis, 2013 REU Participant. Andy Curtis has been accepted for publication in **Environmental Science & Technology** ...

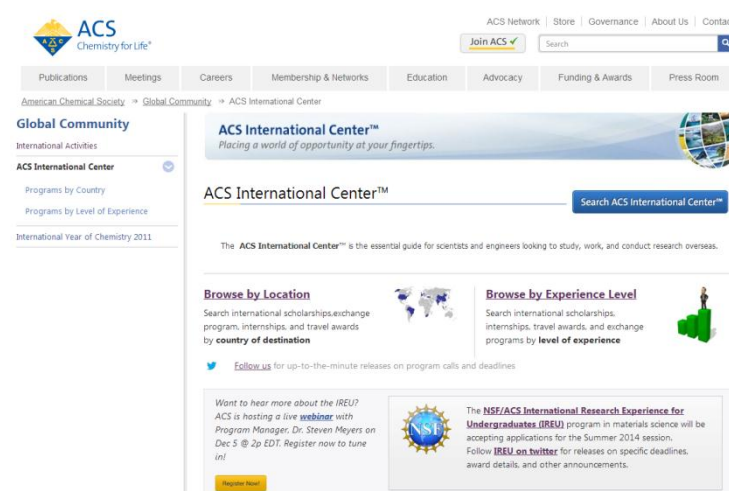
**Research Experience for Undergraduates - Princeton University**  
[www.princeton.edu](http://www.princeton.edu) > ... > Undergraduate Student Programs  
 Sep 27, 2013 - Rick Register and REU students at end of summer BBQ. The Princeton Institute for the **Science and Technology of Materials (PRISM)** and the ...

**Research Experience for Undergraduates - Cornell Center for ...**  
[www.ccmr.cornell.edu/education/reu/](http://www.ccmr.cornell.edu/education/reu/)  
 It is a springboard for innovative **materials science** & engineering research here, ... The REU 2014 application will be available on December 16, 2013.

**REU Program | Brandeis Materials Science Laboratory | Brandeis ...**  
[www.brandeis.edu/mrsec/edoutreach/reuprogram.html](http://www.brandeis.edu/mrsec/edoutreach/reuprogram.html)  
 Official Web site of the Brandeis **Materials Science Laboratory**, Brandeis University, Waltham, Mass.

**MIT: CMSE: Research Experience for Undergraduates Program**  
[web.mit.edu/cmse/educational/reu.shtml](http://web.mit.edu/cmse/educational/reu.shtml)  
 The Center for **Materials Science** and Engineering collaborates with the Materials Processing Center (MPC) to offer a nine-week summer research internship ...

## ACS International Center™



ACS International Center™

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Join ACS Search

Publications Meetings Careers Membership & Networks Education Advocacy Funding & Awards Press Room

American Chemical Society → Global Community → ACS International Center

**Global Community**

International Activities

**ACS International Center**

Programs by Country

Programs by Level of Experience

International Year of Chemistry 2011

**ACS International Center™**

Placing a world of opportunity at your fingertips.

Search ACS International Center™

The ACS International Center™ is the essential guide for scientists and engineers looking to study, work, and conduct research overseas.

**Browse by Location**

Search international scholarships, exchange program, internships, and travel awards by **country of destination**

**Browse by Experience Level**

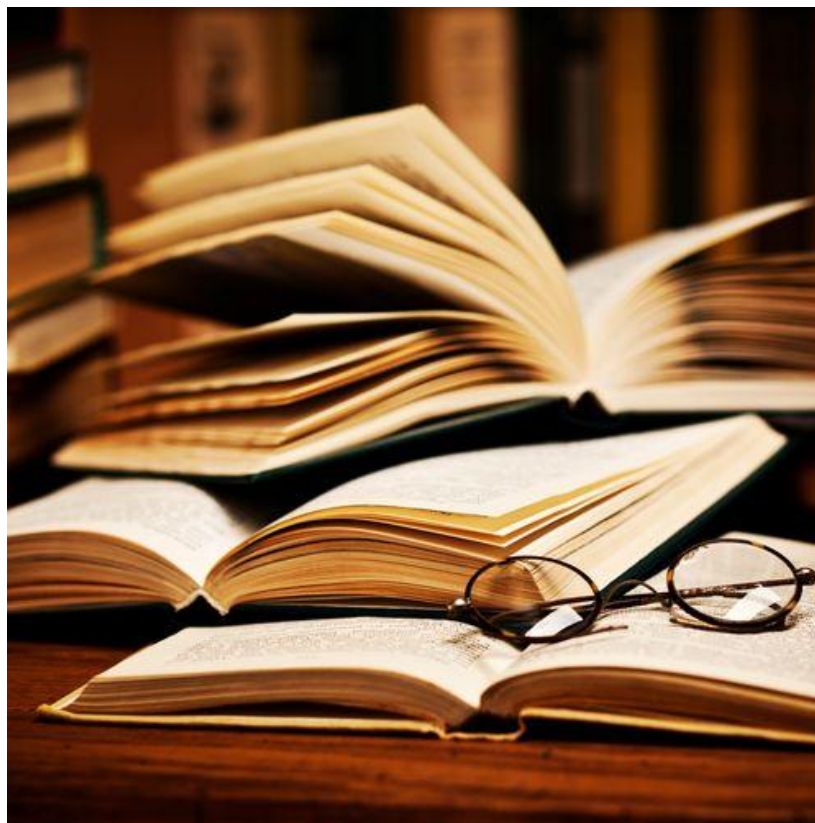
Search international scholarships, internships, travel awards, and exchange programs by **level of experience**

Follow us for up-to-the-minute releases on program calls and deadlines

Want to hear more about the IREU? ACS is hosting a live **webinar** with Program Manager, Dr. Steven Meyers on Dec 5 @ 2p EDT. Register now to tune in!

The **NSF/ACS International Research Experience for Undergraduates (IREU)** program in materials science will be accepting applications for the Summer 2014 session. Follow **IREU on twitter** for releases on specific deadlines, award details, and other announcements.

## TIP #3



Do your research. You may find the perfect fit for you in a hidden place.

# IDENTIFYING PROJECTS

- **What is your desired outcome?**
  - Decide on a lab career
  - Fun travel experience (scientific tourism)
  - Learn a new skill
  - Setup/Further a collaboration
  - Study a geographically located resource/feature
- **How will this serve your educational/career aspirations?**
  - Resume builder
  - Like to eventually live/school overseas
  - Get a job at a multinational
  - Become involved in science policy
  - Non-profit humanitarian career
- **How long can you spend abroad?**
  - days, weeks, months, years (semester, summer)
- **How financially involved do you want to be?**
  - None, some, all out-of-pocket

## QUESTIONS TO ASK YOURSELF

- **What are the specifics of the experience?**
  - How long? When?
  - What are the facilities like?
  - Who will I be working with (mentor)?
  - What is required from me: before, during, after?
  - How competitive is the selection?
  - Citizenship requirements if any?
  - Languages needed?
  - Degrees or prerequisites?
- **What is covered financially?**
  - What is the stipend?
  - Will I miss out on a more lucrative job to participate?
  - Housing costs and where will I be staying?
  - Are travel costs covered? Health insurance? Visa costs?
- **Talk to the program managers with any questions you may have**

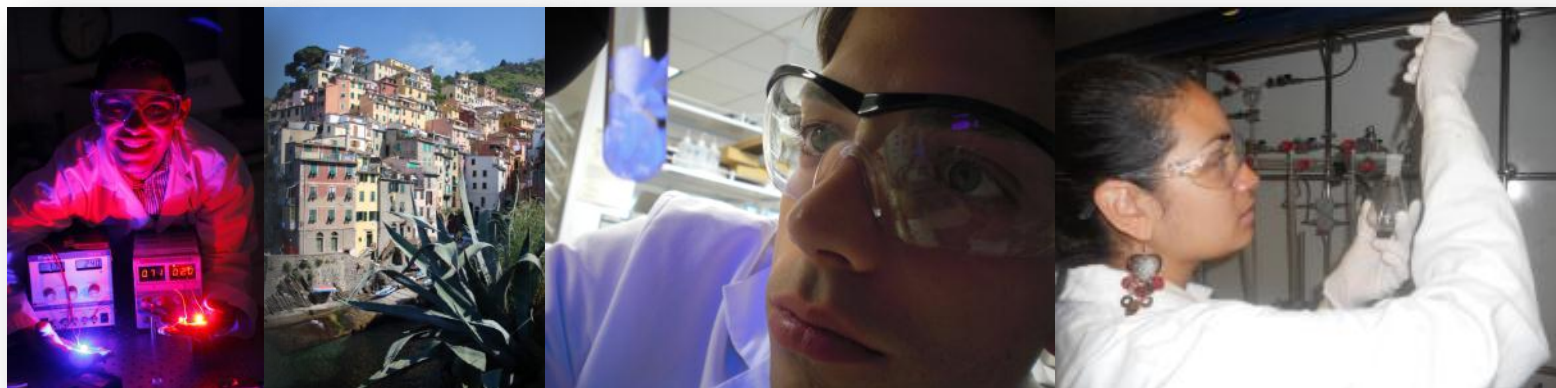


## TIP #4

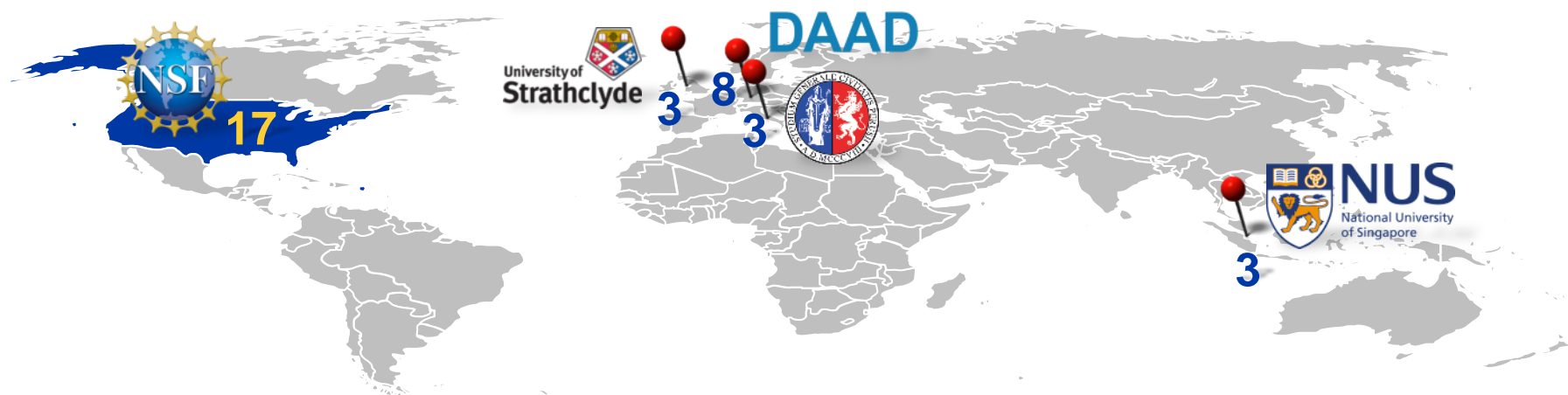


**Don't apply because you can.  
Apply because it makes sense for you.**

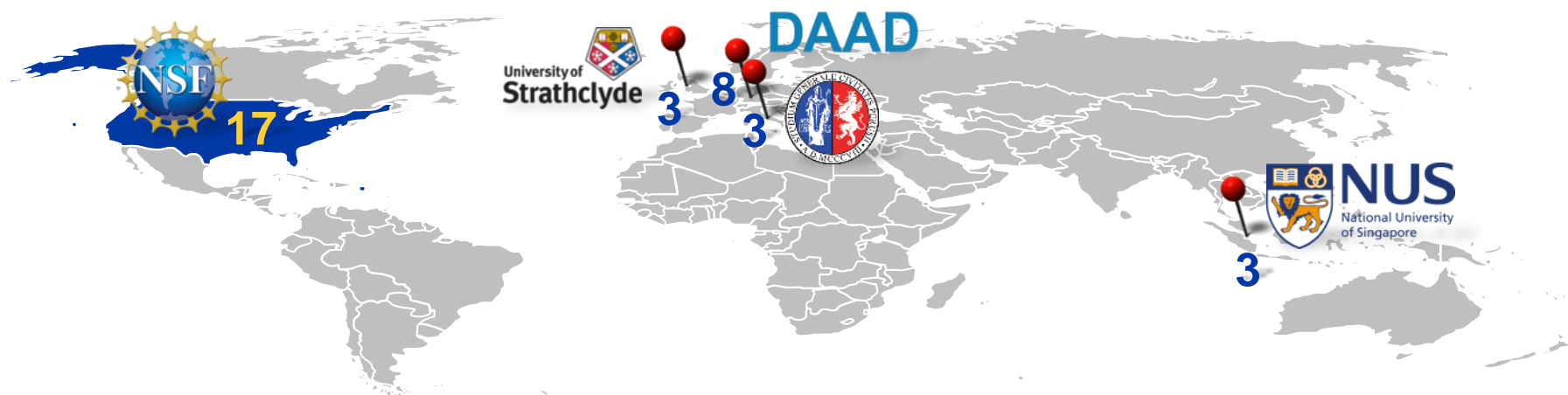
# ACS International Research Experiences for Undergraduates (IREU)



- 4** destinations offered (Germany, Singapore, Italy, UK)
- 10** week int'l summer research project (focus: sustainable energy)
- 17** total undergraduate students (citizens or permanent residents only)
- \$10,000** award equivalent of all received compensation and services  
\$4,000 stipend, housing, airfare, DC orientation, Denver NM, insurance, language, and more



- 15 co-authored publications resulted from alumni projects
- 75 percentage of alumni reporting IREU influenced career decisions
- 79 percentage of alumni were in graduate or professional school<sup>1</sup>
- “the most rewarding experience in my undergraduate career”
- “a once in a lifetime experience that gave me the confidence to pursue research as a career”



## ACS IREU APPLICATION

**8** positions total in Germany



Visit the DAAD RISE database <https://www.daad.de/rise/en/11639/>

Apply using the DAAD RISE application before January 31.

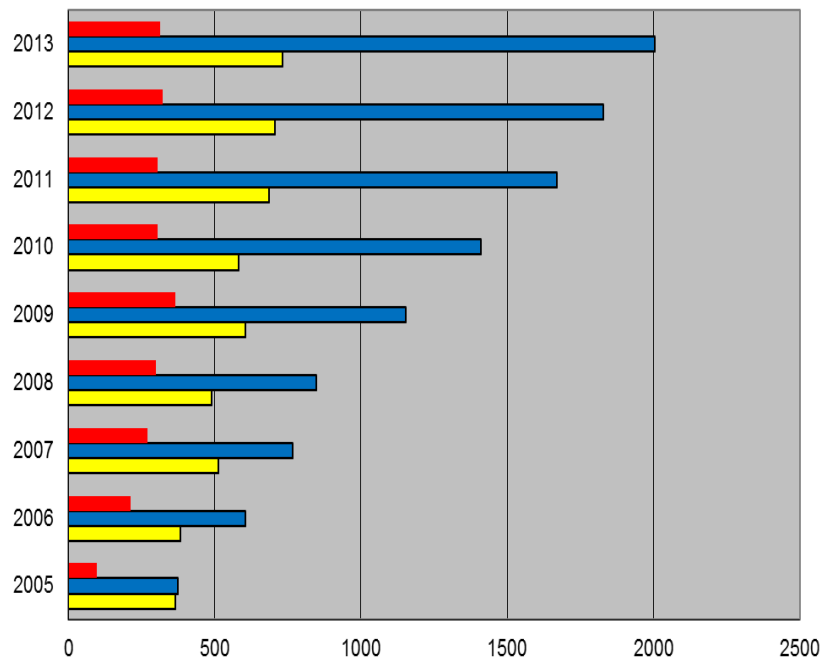
You must check the box to signify your interest in the ACS-DAAD IREU-RISE program

20-30 individuals will be invited to provide additional information after January 31

All others are still eligible for “classic” RISE

# DAAD RISE DATA

RISE Entwicklung 2005-2013



	2005	2006	2007	2008	2009	2010	2011	2012	2013
■ Stipendiaten	98	212	269	298	364	304	306	323	313
■ Bewerbungen	373	605	767	846	1154	1411	1670	1828	2004
■ Projekte	366	382	512	489	604	581	687	705	732

New record in 2013:

2007 applications for 733 projects  
313 scholarships

In 2013 the RISE internship database contained 733 Research internships:

261 Engineering Projects

191 Biology Projects

**102 Chemistry Projects**

148 Physics Projects

31 Earth Science Projects



[www.daad.de/rise](http://www.daad.de/rise)

## ACS IREU APPLICATION

**9** positions total in Italy, Singapore, and the United Kingdom

Examine and pick 3 projects offered by Strathclyde, Perugia, and/or NUS

Apply directly using the application at [www.acs.org/ireu](http://www.acs.org/ireu) before January 31



## TIP #5



**Stretch your comfort zone.  
Consider the road less traveled.**



## ELIGIBILITY

- U.S. citizen or permanent resident
- Enrolled full-time in a U.S. chemistry, materials science, biochemistry, or chemical engineering program
- Have at least one semester of enrollment left after the summer
- ***Previous semester/summer of prior research experience outside coursework***
- GPA  $\geq 3.2$
- ACS membership is not a criteria



## TIP #6



**For your research experience, think locally, then nationally, then globally.**

## FINANCIALS

- \$4,000 stipend
  - \$2,600 for classic DAAD RISE
- Housing allowance
- International airfare
- Orientation in Washington, DC (April 2014)
- Trip to ACS Meeting in Denver (March 2015)
- Language training funds
- International health insurance
- Visa costs



## TIP #7



**Don't do this for the money.  
Do this because it is a passion.**

## APPLICATION SPECIFICS

- Answer to 3 short essay questions
  - **Prior research experience** (250 words)
  - **Reasons you selected the ranked projects** (100 words each)
  - **Personal Statement** on why this experience will help you achieve your education/career goals (500 words)
  - RISE no prior research essay
- 2 letters of recommendation
  - Chemistry, materials science, etc. professor
  - Former/current research advisor encouraged
  - RISE only requests one
- Transcript

Due January 31, 2014

[www.acs.org/ireu](http://www.acs.org/ireu)

[www.daad.de/rise](http://www.daad.de/rise)



## TIP #8



**Start early. Particularly on the recommendations/transcript.**

## TIP #9



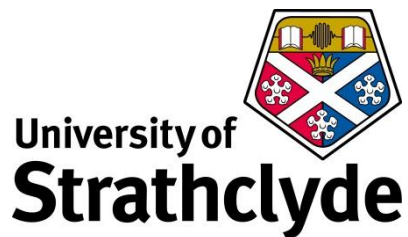
**Make an effort on the essays. It is easy to tell when someone wasn't serious.**

WITH THANKS



DAAD

Deutscher Akademischer Austausch Dienst  
German Academic Exchange Service



**NSF/DMR REU Award #1262908**

**NSF/IIA IRES Award #1261104**



## Julia Throop

Senior Associate, Office of International Activities, American Chemical Society



Julia has worked at ACS since 2012 and supports international collaborative efforts to extend the Society's engagements in international education and training and in fostering collaborations. Before joining ACS, she worked as a consultant/translator for local companies in Shanghai, China and was a contributing writer for the Boston Phoenix.

Today, Julia works as the ACS International Center's chief coordinator. Of the many organizations which have agreed to form affiliations with the ACS International Center, many have become active in their participation by contributing content, and keeping us updated on their country's latest scientific achievements, and promoting at ACS National Meetings and online webinars.

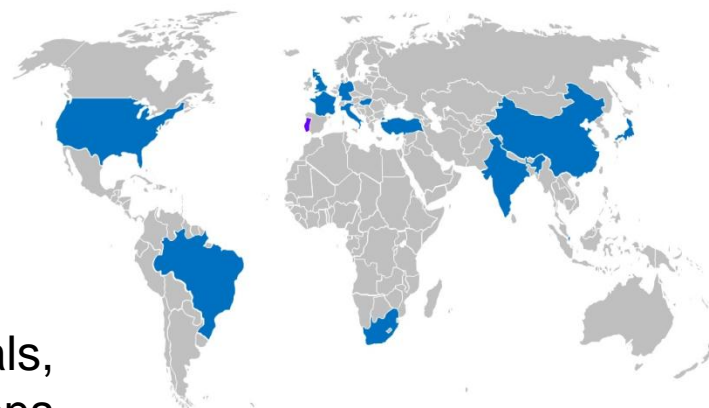
# ACS INTERNATIONAL CENTER™

[www.acs.org/ic](http://www.acs.org/ic)



The ACS International Center™ is the essential guide for scientists and engineers looking to study, work, and conduct research overseas.

- **Information** on over 600 international STEM scholarships, internships, and travel awards
- **17 regions** worldwide
- **6 experience** levels
- **Insider tips** on upcoming calls for proposals, eligibility updates, and deadline extensions ([@ACS\\_IC](#), or [ic@acs.org](mailto:ic@acs.org))
- **Live webinars and events** with  
• representatives from embassies and  
• international organizations



Thursday, January 23, 2014  
2:00pm EST

**Top 10 Tips to Publish Your  
Research Work in English-  
Language Journals**

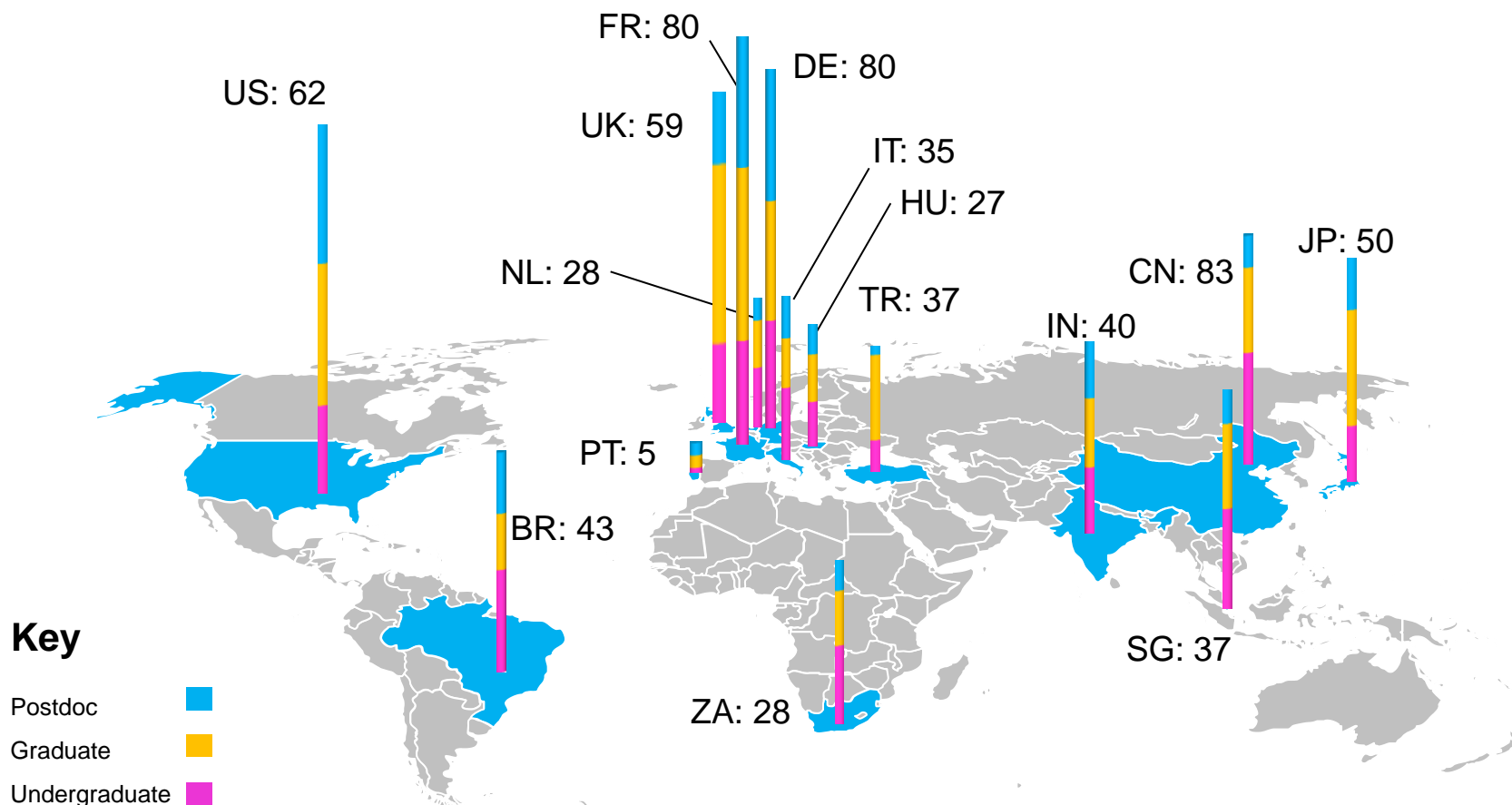
# Current Affiliates



Kingdom of the Netherlands



The ACS International Center™ offers information about funding programs that you might not be hearing about from your school's study abroad offices.



**Note:** bar height is inclusive of all programs in that country. So, one program that may be applicable to citizens of multiple countries is counted once per each applicable country. Text displays total number of unique programs per country.

# Want more information?

**Visit** [www.acs.org/ic](http://www.acs.org/ic)

**E-mail** [ic@acs.org](mailto:ic@acs.org)

**Subscribe** by contacting [intlacts@acs.org](mailto:intlacts@acs.org)

**Follow** us on Twitter at  [@ACS\\_IC](https://twitter.com/ACS_IC)

**Listen** to webinar on “*Top 10 Tips to Publish Your Research Work in English-Language Journals*”

\*(Jan 23, 2014, [www.acs.org/ic](http://www.acs.org/ic))

# QUESTIONS?

Submit them into your Gotowebinar chat box  
now\*

Or, visit:

[\*\*www.acs.org/ic\*\*](http://www.acs.org/ic)

\*Unanswered questions will be addressed after the session and posted online at [\*\*www.acs.org/ic\\_ireu\*\*](http://www.acs.org/ic_ireu), along with a webinar recording and presentation slides, after the session

# Thank you for tuning in!

## Upcoming webinars:

Thursday, January 23, 2014 @ 2p EST

**Top 10 Tips to Publish Your Research Work in  
English-Language Journals**

Register now at: **[acswebinars.org/tips-to-publish](http://acswebinars.org/tips-to-publish)**