Chemistry Communication Leadership Institute

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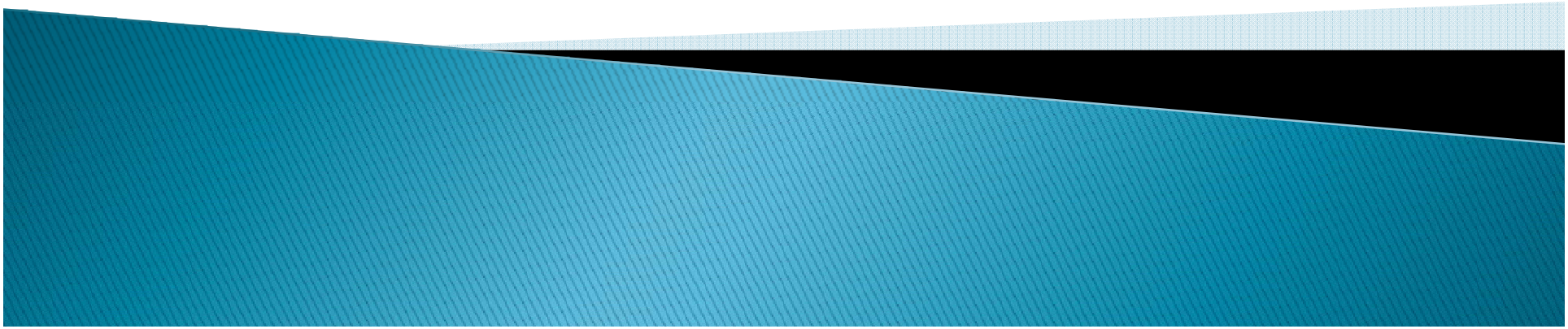


Goal:

Cultivate a cadre of chemistry communication leaders who can:

- **Help bring about a cultural change to promote public communication, and**
- **Mentor others now in the pipeline to be tomorrow's chemistry communicators.**

Approach:

- **Extract the most effective strategies from a decade of experience in teaching science communication and combine them in an intensive, hands-on, week-long institute.**

- **Multiplier effect:**

Chemists bring a curriculum back to their institutions to share with others during the following year and beyond.

Motivations:

- **International Year of Chemistry 2011**
- **Chemistry lags bio- and health sciences in UW science writing program**

10-Year Period:	% of total enrollment (465)
Bio-related sciences[1]	25%
Chemistry	4%
All engineering[2]	4%
All sciences & eng.[3]	58%
Other units	42%

[1] includes biology, zoology, microbiology, molecular & cellular biology, and others

[2] Includes chem e, ee, mech e, civ e, cse, mat sci eng, bioeng; excludes tech comm

[3] Includes nonmatriculated students

The first Chemistry Communication Leadership Institute, Sept 15-19, 2009

- **15 postdoctoral researchers from across the country.**

- **Sponsors:**
  NSF Chemistry Division, ACS, & UW.

Photos by M. Tarselli

Prior to the course:

- **Familiar with the structure of news writing** **20%**
- **Heard of a public information officer before** **0%**
- **Knew about communicating to journalists using a press release** **0%**

But by the time they finished this one-week intensive course, 100% had written a press release and had a chance to learn & practice a range of communication techniques.

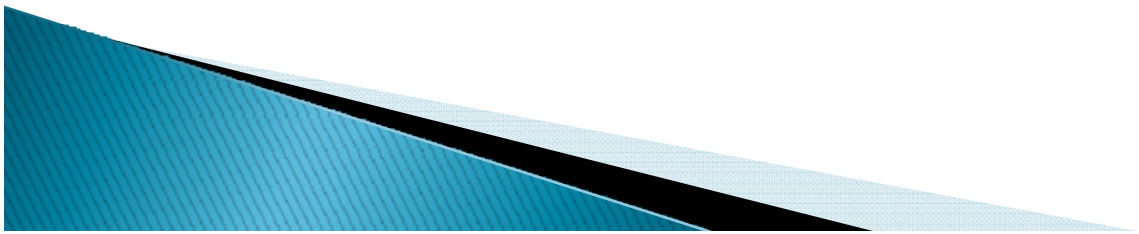
Institute participants gather by the fountain on the UW campus in front of the chemistry building

Topics

- The Science Communication Process
- Challenges of Communicating Chemistry
- Understanding the Journalists World
- Public Information Officers & the Press Release
- Newsworthiness & the Structure of News Writing
- Interviews
- Using Digital Media to Reach Broader Audiences
- Writing for Radio and Podcasts
- Freelancing & Writing the Query Letter
- Writing & Editing Processes: Structure and Clarity

Presenters

Deborah Illman, Lead Instructor	Science Communication Educator & Researcher; Former *C&EN* reporter; Ph.D. in chemistry
Ivan Amato	Science reporter and book author Former Managing Editor, *C&EN*
Robert Service	Reporter for *Science*
Alan Boyle	Science Editor, *MSNBC.com*
Jim Gates	Reporter for KUOW radio
Leila Gray	Public Information Officer, UW Health Sciences
Vince Stricherz	Public Information Officer, UW News Office



Techniques & Activities
Press Release
Headline
Press Release Revision
Mock Press Conference
Query Letter (Freelance Proposal)
90-second Elevator Talk
Interview Simulations

Background & Rationale:

The most frequent problems we encounter in the writings of science researchers have to do with issues of audience:

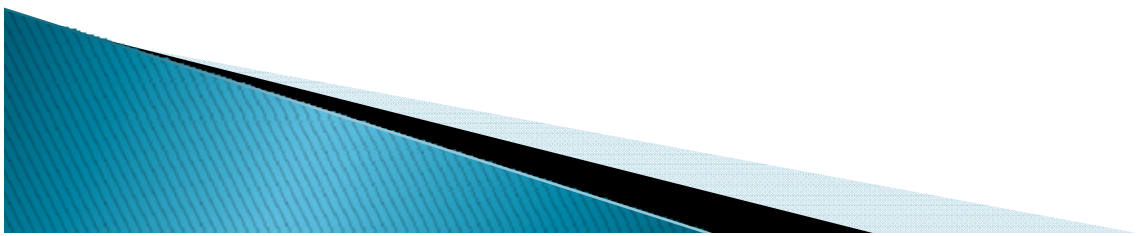
- **use of jargon**
- **familiar terms used in unfamiliar ways**
- **too much technical detail**
- **inadequate explanations & figurative devices**
- **inappropriate selection & order of info**

Informal "show of hands"
in UW science writing classes:

Most science graduate students
have essentially no -- or very little –
contact with non-scientists on a daily basis,

and therefore

little opportunity
to develop mental models
of what is appropriate for journalists
or general readers.



Approach:

Efficient way to develop mental model of audience:
"walking in journalists shoes"

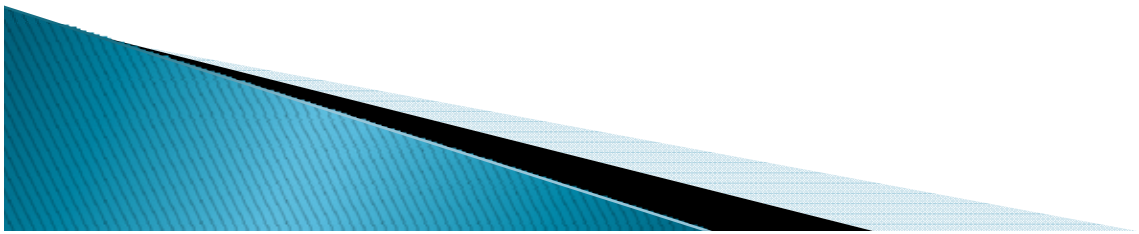
Conventional "media training" is content-specific,

whereas experience with UW science writing program suggests

Walking even a few feet
in journalist's shoes
gives immediate sense of audience that
transcends content and
is generalizable to new situations.

Interview Simulations

- Chemists serve as journalists , prepare interview guide
- Sources played by experienced actors from
  Effective Arts — a consulting firm specializing in
  high-stakes communication training.
- Actors supplied with real scenarios based on actual press releases
- Actors depict commonly encountered source personality types
  - reluctant source--person of few words
  - tangential talker
  - hostile source, wary of being misquoted
  - derives everything from first principles and “talks down”
- Sources rotate thru 4 groups of participants, ~10 min interview ea.
- Final debriefing to discuss experience.



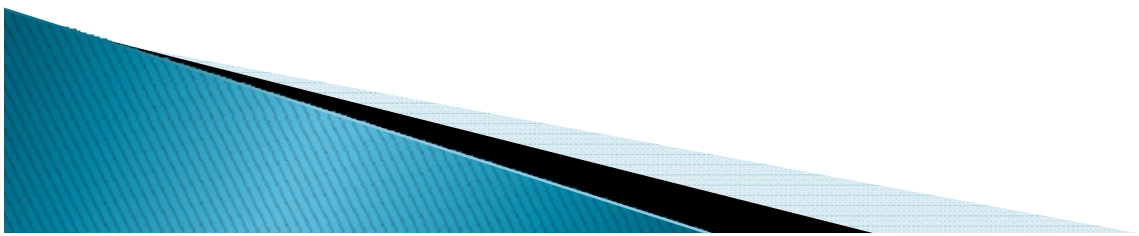
Interview simulations:

Highest rating of all activities (4.87 out of 5).

Participant Feedback:

"Very illuminating—things are much more obvious when the shoe is on the other foot.

A journalist's needs are quite clear now."



Participant Feedback

100% Rated the institute good to excellent **(4.53 out of 5)**

100% Would recommend it to others.

100% Said they were more likely to engage in communication in their careers as a result of this program.

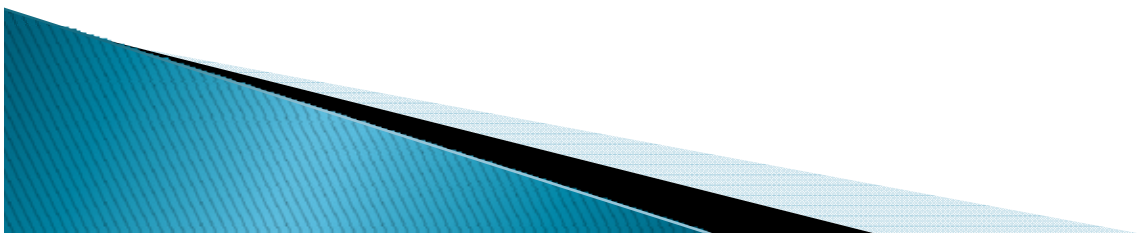
Participant Feedback:

"The guest speakers introduced me into a world which is completely in the dark for most researchers.

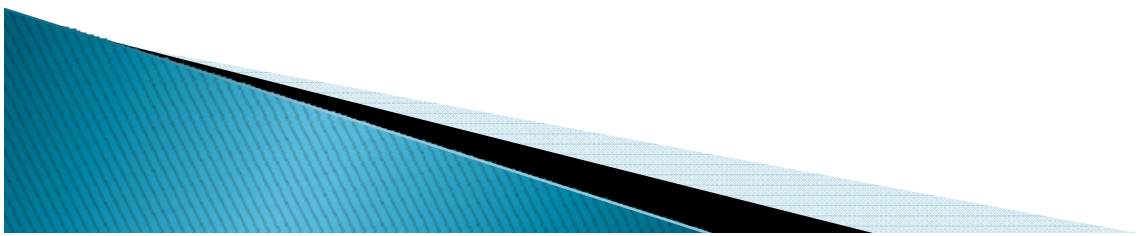
Knowing the process of publication and how it works is extremely valuable."

Participant Feedback

"The most important aspect
for chemists
is the 'lifting of the veil'
on how science news
is published, what are the
steps and motivations, and
who are the key players
in the process."



“I feel like I have a writing network now.”



CCLI Outcomes

NEWS & VIEWS

A Publication of The Scripps Research Institute

Volume 9 Issue 34/ November 9, 2009

Stepping Up, Page 3
Bioentrepreneurship 101, Page 5
In Brief, Page 9

Floor Three: Synthesizing the Future of Scripps Florida

By Michael Tarselli

The mirrored, iridescent blue wall of Building A stretches along the trian lagoon of the Scripps Florida campus. Peek inside and you may see a big ye robotic arm, gas tanks being delivered, and scientists sporting blue lab coat purple gloves. Up on Floor Three, the elevator doors open on a scientific syn rotovaps churning, metallic clinks, radios blaring classic rock, and the ever-p hum of a room filled with activity. This is home for Scripps Florida's three sy organic chemistry groups.

Led by principal investigators William Roush, Roy Periana, and Glenn M the three groups tackle organic synthesis problems, taking simple substance rived from oil, plants, rocks—even the air we breathe—and stitching them to produce complex structures. Like molecular architects, the 50 chemists th prise these groups try to answer some of the world's big questions by manip substances' "built-in" properties, from boiling point to fragrance. These ch believe almost anything is possible... with enough time spent at the lab ben

Using Chemistry to Tackle Disease

A major goal of the Roush group is to make compounds to treat parasi tropical diseases, such as leishmaniasis or Chagas disease. William Roush, w a professor in the Department of Chemistry, executive director of the Transl Research Institute Medical Chemistry Division, and associate dean of the Ke School of Science and Technology, was one of the first chemists to arrive at Florida. He hoped to "move [his] research to the biological side," thus takin advantage of the wealth of top-flight biology colleagues at Scripps Florida.

"Molecular biology isn't a problem in biology," he says. "It's a chemistry p

The very first drug-like molecule the group synthesized at Scripps Floric wasn't intended to be active, was itself a potent treatment for Chagas. It's under evaluation by biology collaborators at the University of California, Sa

Scripps Florida's diverse faculty also affords the Roush group opportuni work with several renowned internal collaborators. With Professor John Cle the Roush group makes lactic acid transporter inhibitors, which have recent to slow cancer progression in mice tumors. Roush and Assistant Professor N Ayad are studying proteins called kinases in an effort to discover new treatr Alzheimer's disease.

The rest of the Roush group devotes itself to "classic" synthetic chemis a.k.a. the total synthesis (the complete building of complex organic molecu simpler pieces) of medicinally relevant natural products (single compounds from leaves, fungi, bacteria...even dirt). Many natural products have been fi possess unique properties or enticing new structures.

Roush has developed several boron-based methods to selectively produ isomers (compounds with the same molecular formula but different structu features) of natural products. This approach (see *J. Am. Chem. Soc.* 2009, A streamline syntheses of potential cancer drugs or enzyme inhibitors.

What especially excites Roush about his craft? "It's an enabling technolog

News&Views continued

NORTHWEST SCIENCE & TECHNOLOGY

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SPRING 2010

Scientists Turn To Nature For Clues On Building Better Fuel Cells

New Research Center To Develop Effective Ways To Store And Use Chemical Energy

By Dick T. Co

Although hydrogen atoms are the lightest chemical element around, scientists are definitely not taking them lightly in their quest for alternative energy solutions.

Researchers at the Center for Molecular Electrocatalysis are dissecting nature's 3-billion-year-old photosynthetic machineries and reassembling the critical parts into new molecular systems that will effectively and affordably generate, store, and use clean energy.

Established in 2009, the Center for Molecular Electrocatalysis is one of the
Research Cen
five years, th
The Center is
Laboratory ar
from PNNL, t
University, ar

TECHNOLOGY

IN THIS SECTION
The Smarts Of Smart Grids
Moth Eyes Inspire Better Optics
Engineers Look To Nature For New Robotics Strategies

SEE ALSO
A Sampler Of Energy Centers

NORTHWEST SCIENCE & TECHNOLOGY

SPRING 2010

Outreach Program Uses Berry Power To Engage High School Students

By Michael G. Walter

How can you make a solar cell out of a blackberry? And, how many solar cells can you make using a single blackberry?

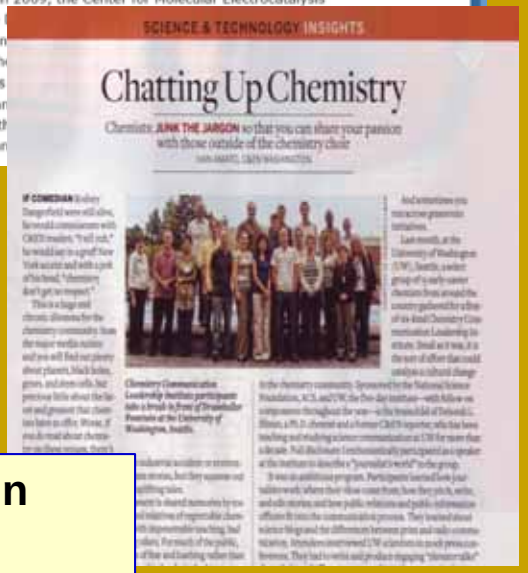
These are the questions students in Melinda Reynolds and Alex Pratt's chemistry classes at John Muir High School in Pasadena, California are trying to answer. No, we're not talking about a blackberry smartphone (which is definitely not a solar cell) but rather, the darkly colored sweet berry that grows wild in many parts of the Western U.S.

Blackberries contain a strongly light-absorbing dye molecule called anthocyanin, which occurs in many types of fruits and berries. It's the compound that gives blackberries, raspberries, blueberries, and pomegranates their color. These dyes can be extracted and used in a dye-sensitized TiO_2 solar cell to absorb light and then convert the light into electrical energy.

This is the basis of an outreach project I'm leading at John Muir High School to bring the latest solar energy technologies into the science curriculum. The solar cell labs are also being carefully designed to integrate important chemistry and physics concepts that meet the California State education

IN THIS ISSUE

SEE ALSO
Anatomy Of A Dye-Sensitized Solar Cell



SCIENCE & TECHNOLOGY INSIGHTS

Chatting Up Chemistry

Chemists JUNK THE JARGON so that you can share your passion with those outside of the chemistry choir

"Scientists Develop Method to Identify Tissue During Surgery in Real Time," Adam Tenderholt, V*ernal Express*, Oct. 21, 2009.

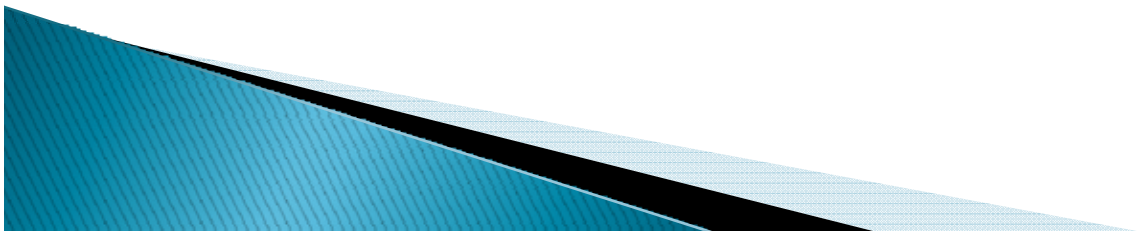
Mid-Year Activity Report by CCLI Alumni

Activity	# Activities	Affected directly	# Affected indirectly
Seminars	7	125	
Events & Outreach	7		~ 2800 at 2º School and up
Web Projects	6		
Student Workshops	5	30 +	
Freelance Writing	5		1000 @ Scripps; 15,000 @ Utah newspaper; NWST: 200,000 hits, 10,000 visits
Other Media Coverage	4		150,000 C&EN Blogs, TV, websites—no estimate
Mentoring / Consultants	3	70	
Video / Film	1		
Proposals for External $	1		
Total # of Activities	39		
Estimated Total Number of People Reached by CCLI Phase 1 as of mid-year:			
Postdoc institutions		225	1000
2º School, other colleges			2800
General Public			10,000 to 200,000 +

Mid-Year Report

Participant Feedback: Challenges Faced

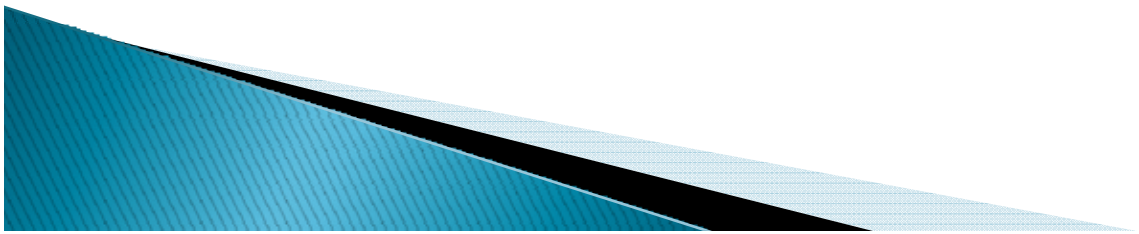
Time constraints of job	**10**
Job hunt / change	**10**
Resistance in group or department; Institutional culture	**5**
Getting started in freelancing; getting placement	**4**
Loss of momentum upon returning to job	**2**
Overcoming fears & old habits	**2**



Mid-Year Report

Participant Feedback: Kinds of Support Needed

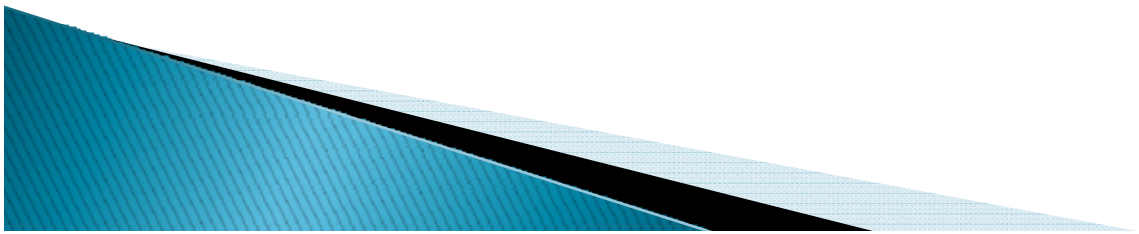
Periodic reminders, nudges, updates	**6**
Help in "brokering" or facilitating freelancing opportunities; Increasing visibility of writing products	**4**
More guidance on **- how to share/teach communication in context of chemistry** **- how to show chemists this material is relevant to chemistry careers**	**4**



Future Directions

Phase II Renewal Pending:

- **5 more institutes over 2 years**
- **reach a total of ~ 100 chemists**
- **establish Web site and other mechanisms to showcase / promote alumni writing & communication activities**
- **transition to self-sustaining operation**
- **broaden participation to faculty**
- **study feedback & effects for broader group**



Ongoing NSF Project : SES-0956624

Mental Models of Audience and Decision-Making in Science & Technology Communication – D.L. Illman

Goals:

- **Use mental models research methodology to study perceptions of audience and decision-making in the science & technology communication process.**

- **Elucidate and compare mental models of experts and novices (experienced science journalists and science grad students).**

- **Develop and test 2 versions of a learning module to see which strategy may be more effective at helping novices advance to more expert levels.**