NSF Sponsored Workshop: Training Professionals to Prepare STEM Undergraduates for Research

This work was sponsored by a collaborative grant from the National Science Foundation

(1623694, 1623581, 1623697, and 1623631)

Introductions- The Workshop Team

- David Bahr
- Susan Burkett
- Kenneth Fedorka
- Shelley Pressley
- Kimberly Schneider
- Delaney Sherwin

Attendees!

27 attendees from 26 institutions

Illinois College
Moravian College
San Jose State University
Saginaw Valley State University
Oregon State University
University of Washington Bothell
University of Oklahoma
Valencia College
Western Oregon University
Augusta University
Clemson University
George Mason University
Miami University, Ohio
Randolph College
The Citadel
University of Kentucky, Paducah Campus
University of South Carolina
Embry-Riddle Aeronautical University- Daytona Beach
New College of Florida
Valencia College
University of North Florida
Florida State College at Jacksonville
Stetson University
Flordia Southern College
Seminole State College of Florida
Jacksonville University
Iowa State University

Schedule Review

- Note: Summer Research Academy (SRA) is running in parallel, so you are grouped just like the SRA students
- Day 1
  - Overview and Lunch
  - Review SRA Units
- Day 2
  - SRA Observations- Library Visits, Lectures, Poster Showcase
  - Sharing Opportunities
  - Assessment
- Day 3
  - SRA Observations- Tech Transfer, Grad School, Mini Workshops
  - Peer Mentor Model
  - Plan Development

SRA Schedule

General Logistics

- General Office Number: 407- 823-3125
- Team Cell
  - Dave: 509-592-7268
  - Susan: 479-236-4128
  - Shelley: 208-301-2074
- UCF Map
  - All sessions are in Live Oak or Student Union
  - Delaney and Ken available for UCF questions

Essentials

- ★ Live Oak Ballroom, UCF
- = La Qunita Hotel
- S Student Union

Breakfast

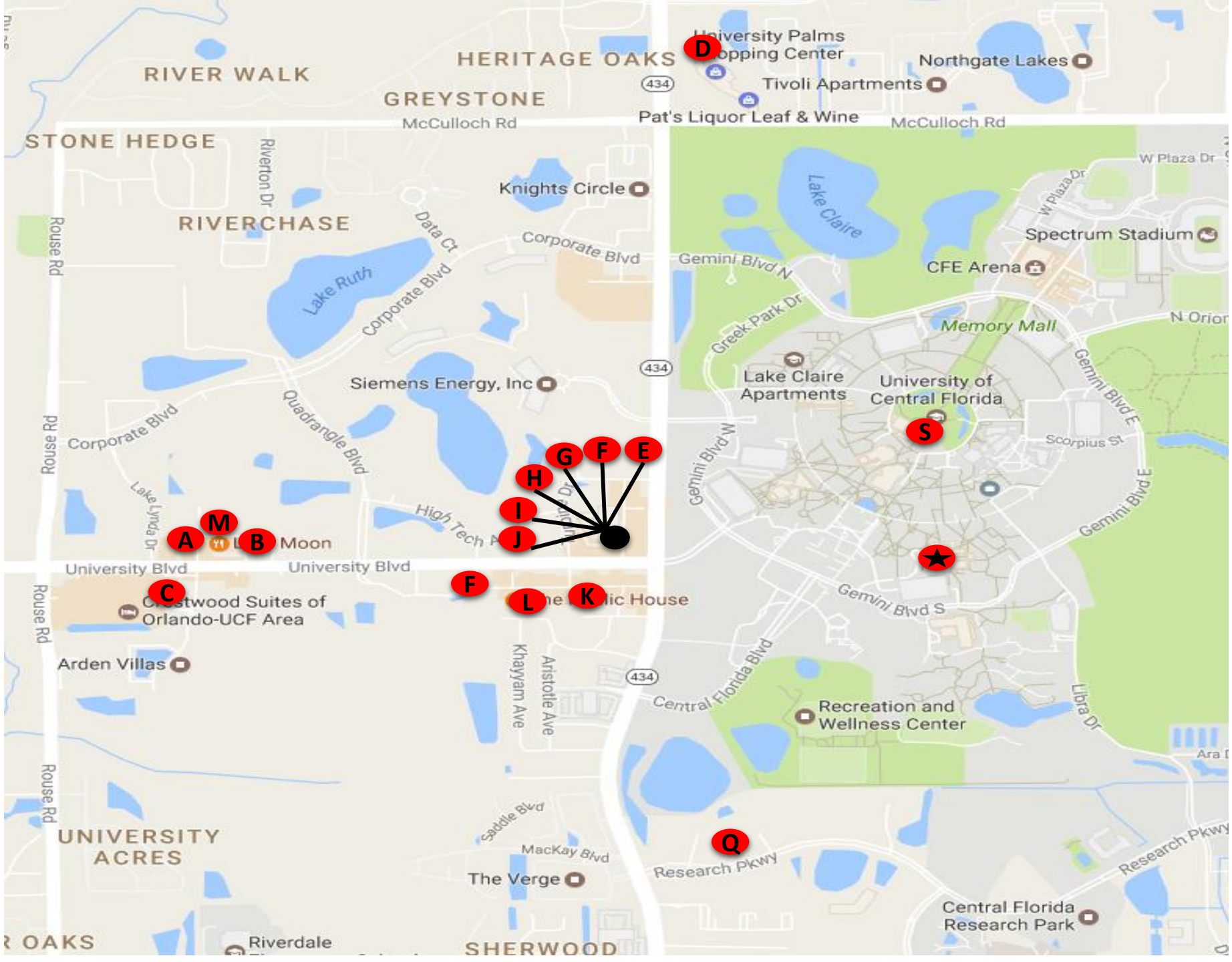
- A First Watch
- B IHOP
- C Panera
- D KeKe's Café
- E Omelet Bar

Food

- F Bento
- G Bar Louie
- H Spoleto Italian Kitchen
- I Burger Fi
- J Blaze Pizza
- K Miss Saigon
- L 4 Rivers BBQ

Bars

- L Public House
- M World of Beer
- G Bar Louie



Pre-Research Models

Kimberly Schneider, PhD

Why did we ever do this (early engagement in research)?

- Reduces barriers to student participation in research
- Takes fear away from the scary process of long term commitment with frightening faculty
- Benefit faculty with longer access to students
- Help students know what they are getting into

Overview

- 3 adapted models implemented at University of Central Florida, University of Alabama, and Washington State University
  - NSF funded since 2007 (WSU CURE)
  - UCF SRA in 2007 course
  - CUR interactions led to EURO in 2011
- Can be designed to target STEM or non-STEM disciplines
- Immerses students in a research-oriented approach to undergraduate involvement

Peer-Mentored Short Course (PMSC)

- University of Central Florida's Summer Research Academy (SRA)
- Promotes awareness of research involvement
- Three-day, one-credit hour course, pass/fail
- Peer mentors leading small, mixed, discipline-specific groups of undergraduates
- Workshop-style
- 100+ participants, 12 peer mentors

Faculty-Led Boot Camp (FLBC)

- Washington State University
- 10 half-day modules, one week, 40 hours
- Original model paid student stipends to offset housing costs
- Faculty-led instruction, guest speakers
- Activities, groups assignments/projects
- 20-30 students

Semester Long Seminar (SLS)

- Based on a U Wisconsin course in Engineering Physics
- Fits into academic schedule
- Traditional weekly lecture
- Instructor-led, involves guest speakers
- Homework assignments, group projects
- 20-30 students
- Alternative: mini-semester (3 times a week for 5 weeks)

Student Voice

Group discussion about models pros and cons

- Semester long seminar:
  - “normal”, fits into classes, no “extra” time commitment so maybe broader participation
  - Low priority during busy times
- Peer mentored short course
  - Focused, student engagement, cost effective
  - Logistical challenges, extra time commitment
- Faculty lead boot camp
  - Focused, in depth, team building (faculty usual suspects)
  - More costly, longest “extra” commitment

SLS discussion points

- How easy would this be to do at your school?
- Who would run it?
- Will there be cross listing, silo battles?
- Who advertises, how big can you get?
- Best model for Honors college things?

PMSC discussion points

- Could be the earliest of the early options
  - Incoming freshmen viable depending on university policy for “welcome” activities
  - Building student cohort is a benefit
  - Adaptable to REU (short)
- Cross cutting nature – turf battles, need help from colleagues

FLBC discussion points

- 1 week time commitment from students scares off some (self selection anyways?), but focus helps students
- Housing cost can detract
- With strong colleague participation you build a network of usual suspects
- Could you get 6-8 people to help you?
- Is this best at your site pre/post semester?

GOAL

To conduct a workshop for *national dissemination* of educational materials and lessons learned.

Target audience: faculty and administrators interested in increasing the number of students involved in undergraduate research.

Framework to Train Professionals

- Running this workshop in conjunction with the peer-mentored short course (PMSC) at UCF allows participants to experience the short course first-hand while learning about the preparatory course.

Expectations

- As facilitators, we will provide guidance and share our materials and experiences in teaching these courses.
- Our expectation is that you draft a plan before you leave the workshop that describes how you might adopt/adapt our approach at your institution.
- We will follow up with you a few months after the workshop via email/phone/skype to discuss progress on your implementation plan.
- This workshop has the broadest impact if the course is implemented in some form even if your implementation varies from what you observe in the workshop.

Implementation Plan to be collected Saturday

We are flexible about what might be included in your plan. Some ideas regarding structure.

1) Provide a summary of how undergraduate research is administered at your home institution.
2) Pre-research skills educational format: Are you considering a course, workshop, modules, independent study?
3) Content: Will you adopt without revision, revise content, bring in new content?
4) Assessment: How will you assess your student knowledge gains or the value of the preparatory work?

Lunch!

- Please be ready by 1:15 for an interactive icebreaker in your group

Pre-research models course content review

Presented tag-team style

Course Content – Drilling Down

I. Professional Development and Resources (Shelley)
II. Basic Research Skills and Research Etiquette (Susan)
III. Finding and Using Literature (Susan)
IV. Dissemination: Technical Writing, Posters, and Presentations (Dave)
V. Intellectual Property (Dave)

I. Professional Development and Resources

Using Interactive and Hands-on Methods

Interactive methods of delivery provide many benefits:

- Higher student engagement
- Practice for the student, thus deeper learning
- Development of “team-work skills” and non-technical skills needed for success in any career (i.e. networking, peer communication)

I. Professional Development and Resources

Basic fundamentals of communicating with faculty is needed, very few students know how to start

1. Mock Email to a Potential Mentor
2. Personal Resume
3. Critique Resume Samples
4. Mock Interview Activity
5. Mentor/student Relationships

Interactive Activity Examples

Email Contact

- Email the Professor
- Ask if there are any openings in their lab
- Say why their research interests you
- Demonstrate that you are familiar with their research
- Be professional
- Attach a resume
- Suggest a meeting

HOW TO WRITE AN E-MAIL TO YOUR INSTRUCTOR OR T.A.

From: Student
To: Instructor/TA

"hey"

lol, when is your office huors?

btw, where is you're office?

MY NAME IS NOT "HEY," "YO," "SUP" OR "DUDE." USE A PROPER GREETING!

OMG, WHAT ARE YOU, 14? WRITE FULL SENTENCES! THE INTERNET HAS ENOUGH BANDWIDTH.

SIGN YOUR NAME! THIS ISN'T CHAT AND WE ARE NOT FRIENDS.

BEFORE ASKING YOUR QUESTION, ALWAYS CONSULT:
A) THE SYLLABUS
B) COMMON SENSE
C) THE SYLLABUS

IT ONLY TAKES A SECOND TO SPELL CHECK! SERIOUSLY, YOUR TIME IS NOT THAT IMPORTANT.

AAAAHHH!! HOW DID YOU GRADUATE HIGH SCHOOL!?

IT'S IN THE SYLLABUS!!!

JORGE CHAM © 2015

Hi Joe,

My name is Oscar and I am a major in Food Science. Is there space in your lab for an undergraduate? If so, what is the pay rate?

Thanks,
Oscar

DO NOT SEND!

Source: University of California Santa Barbara, https://ugr.ue.ucsc.edu/email_examples

Dear Dr. Smith,

My name is David Wu and I'm a second year biology major at UVa. In my introductory and upper-level coursework, I've developed a passion for science and am extremely interested in pursuing independent research as an undergraduate. An extensive research experience will greatly help me consolidate my future career choice.

I am personally greatly interested in the molecular biology of stem cells. Recently I read your 2011 paper on the role of microRNAs in the differentiation of muscle stem cells and became fascinated by your work. In particular, I found it amazing that microRNAs can alter the fate of a cell in such a profound way. If possible, I would love to start working on a long-term project in your lab beginning this summer.

Would you be available to meet sometime this week to discuss your research? I would also be happy to volunteer in your lab for a few weeks before we commit to anything to see if this is a good match. My transcript and resume are attached in case you are interested. I look forward to hearing from you!

Thank you,

David Wu

Source: University of California Santa Barbara, https://ugr.ue.ucsc.edu/email_examples

Be Smart about your Social Media

How we run this in our courses

- Read the resumes at your table. Each person spend 5 minutes and find three things about each resume that you did or did not like (2 bad and 1 good, 2 good and 1 bad…etc)
- Go around and share with the group
- Some resumes seem worse than others? Why? What did they do wrong?
- Now share your own resumes with your table and critique

During your interview ……..

- **What *NOT* to wear to your interview**

Some "NO's":

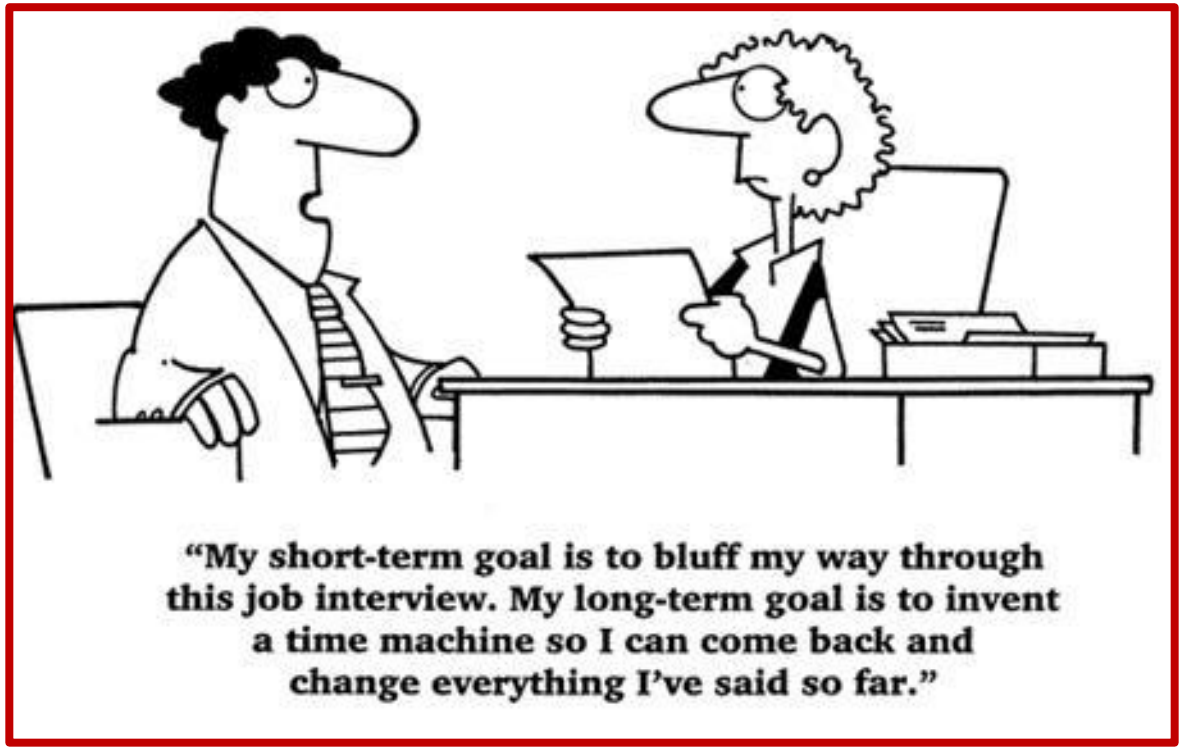
- ✓ No bright or heavy eye, lip, or face makeup
- ✓ Remove or cover any piercings or tattoos
- ✓ No messy hair styles
- ✓ No bulky jewelry
- ✓ No flip flops, sneakers, or sandals
- ✓ No short skirts
- ✓ No low-rise pants
- ✓ No visible underwear
- ✓ No tight clothing
- ✓ No T-shirts
- ✓ No heavy perfume or cologne

During your interview ……..

- ✓ **Avoid looking at your Phone**

- ✓ **Avoid distracting nonverbal habits**
  - ➢ **Examples: biting your lip or nails, touching your face, fiddling with any objects, drumming your fingers, chewing gum or candy, fidgeting**

- ✓ **Don't lie**



The Mock Interview Layout

- Each person in your group will be interviewed by a different mentor at various locations around the room
- Be professional
- Each interview will last about 8 minutes
- The interview is followed by a “wrap-up”
- Let the next person know it is their turn

While you are waiting for your turn – look at the interview questions at your table

Course Content – Drilling Down

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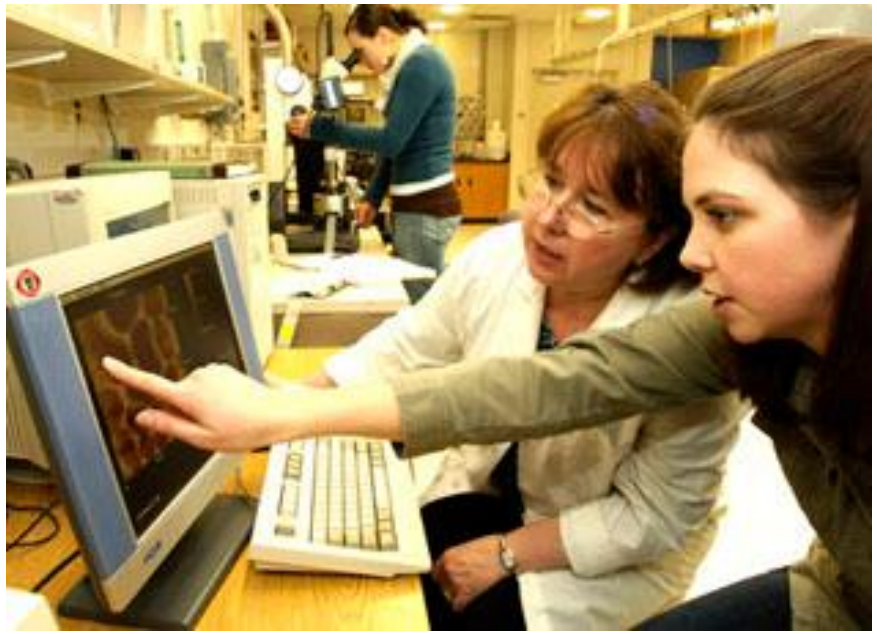
II. **Basic Research Skills and Research Etiquette (Susan)**

III. **Finding and Using Literature (Susan)**

IV. Dissemination (David)

V. Intellectual Property (David)

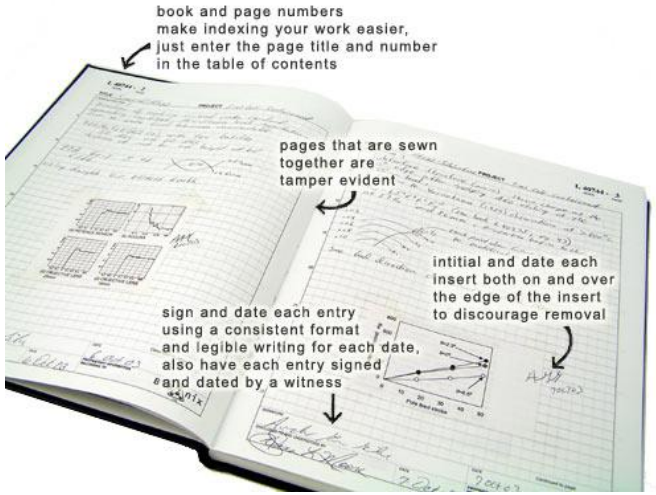


Basic Research Skills and Research Etiquette (Section 2)

Objective: This group of lectures/activities: promote understanding of the basic research process; give students an idea of how to identify potential faculty mentors; allow reflection of visits to research laboratories; and promote best practices for documenting research activities.

1) Groups discuss the questions “What is research?”
2) Groups explore research in various disciplines
3) Students work on a profile of faculty mentors
4) Students reflect on laboratory site visits
5) Groups work on a study and document methods and findings.

RULES



- ✓ **Bound**
  Can't tear out pages; no spiral bound notebooks or 3-ring binders
- ✓ **Entries dated**
- ✓ **Witnessed**
  Notebooks witnessed periodically (≈ weekly) by a group member; provides some legal security
- ✓ **Use pen (indelible)**
  If you make a mistake, the original text needs to be legible. If you make a correction, draw a single line through the erroneous text and initial the replacement entry.
- ✓ **Pages numbered**
  No blank areas; Draw a line through any blank pages or blank areas
- ✓ **Auxiliary paper (e.g. printed data)**
  Has to be pasted (not taped, not stapled)
- ✓ **Everyone in a group keeps a separate notebook**
- ✓ **Record all experiments, even bad ones**

Lab Notebooks
Data Collection Activity

The objective of this assignment is to determine the number of red cars that pass a certain point on campus during a 24-hour period. You will be provided a logbook to record data and methods.

- The logbook should be complete and include all information as discussed in class.
- The last page of your logbook should include the answer to the question, along with all assumptions you made in order to achieve that answer.
- Please turn in your logbook (in class as a group) and each person should submit a short paragraph describing the following:

1. What were the group dynamics? How did your team work with each other?
2. In hindsight, were there things your group could have done better?

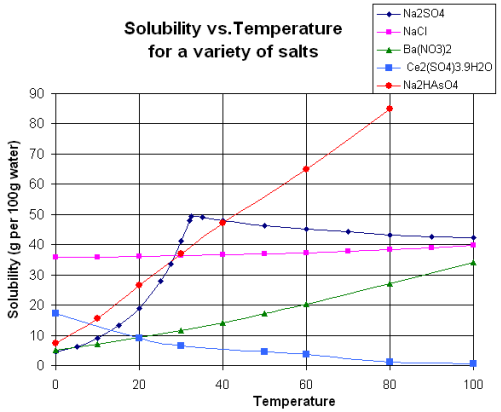
Finding and Using Literature (Section 3)

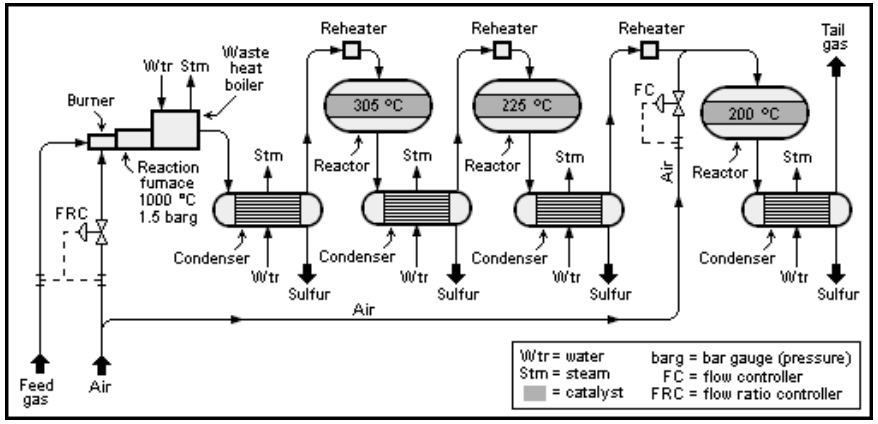
Objective: This group of lectures/activities: promote understanding of the different literature types (primary, secondary, etc.); allow them to analyze a journal article; introduce the idea of citations; and guide the writing of abstracts and literature reviews.

1) Students do a library scavenger hunt.
2) Groups start with a specific paper and go back in time through citations of citations of citations… and use a scoring system in a competition.
3) Groups analyze a specific journal article.
4) Students write an abstract for a specific paper.
5) Students create an outline they keep adding to for their literature review.

How to Determine Literature Type: Graphics

- Primary
  - Technical





- Secondary
  - General, “marketing feel”

Source for all pictures:
commons.wikipedia.org

Literature Review – Super Outline

Students choose a topic and read papers in that area. They write a review with at least 5 references (3 from primary literature) and a word count of 500-750 words (not including citations).

- Outlining was added to help students create a flow to their review.
- Phase I structure: Intro, Early Work, Seminal Discoveries, Refinements, Remaining Challenges.
- Phase II - write descriptions for each section; define what needs to be addressed. Refine Phase I outline if needed.
- Phase III – write introductory and closing sentences for each paragraph to help create smooth transitions.

Feedback is given by instructors/peer mentors on each Phase.

Course Content – Drilling Down

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Dissemination

- One of the four pillars of UG Research:
  - Unique, mentored, appropriate to discipline, plan for dissemination
- Crucial to set stage for students to make it clear that it is part of doing research; must be deliberate
- Do not underestimate their lack of experience in this

Ways UG Disseminate Work

- **Technical papers**
- **Posters**
- Presentations

Research and Writing: Why, What and How?

- Why do we need good writing skills to do research?
- What kind of documents do we need to write?
- How do we write clearly and successfully?

Refereed journal publications and peer reviewed conference proceedings

- Primary vehicles for disseminating knowledge
- Central to the scientific method—reviewed by our peers
- Key measure of research productivity
- Required for future funding

Good technical writing

- Start with an outline—think about a logical presentation of the material
- Do the literature review—what is the state-of-the-art (no plagiarism)?
- Document your methods—lab notebooks are the basis for this section
- Present your results—what story are you trying to tell?
- Discuss the results with respect to previous work and future directions
- Summarize concisely
- Write the abstract—any word limits?
- Revise and revise again—get others to review and provide comments
- Check for grammar, punctuation, spelling http://grammar.qdnow.com/
- Use the right format for references, make sure they are correct and appropriate
- Figures—use large font, clear lines and symbols
- Practice good writing skills—Elements of Style, Strunk and White, and others

Let’s try a writing exercise….

- Read the CO_2 flux paper, make notes as needed
- Write your version of an abstract for this paper—300 word limit
- Trade abstracts with a colleague—review and edit and return
- if possible use Word and the Word Revision tool
- Compare to the original paper abstract

Authorship of papers

- Different fields have different expectations or weight on sole authorship.
- Engineering and science usually have co-authors.
- Policies do vary a bit from journal to journal, but in general:
- Authorship is assigned for only those who contributed substantially and intellectually to the paper.
- Committee on Publishing Ethics https://publicationethics.org/

Poster presentations

July 2010

Katerina Bellou

- A poster is used to present your work or research (for example at a conference)
- It is a short version of your research
- It’s purpose is to draw the interest of the audience so they will keep reading

- There are two types of posters
  - The ones that you will present
  - Those that will do the talking in your absence

Anatomy of a poster

- A poster must be focused, organized and present the author's results or ideas clearly.
- Typically the basic parts of a poster are:

✓**Title:** An appropriate title that describes the research you are going to present**.** This is where the authors' name and affiliation will be included

✓ **Introduction:** What is this poster about. How is your research contributing to the field

✓**Description of methods or experiments:** Description of the methods used to acquire your data

✓**Results and analysis:** Less is more. Don't overwhelm your poster with text. Use graphs and images to make your poster visually appealing

✓**Conclusions:** Present the conclusions based on what you have presented

✓**Acknowledgements**

✓**References**

DOs and DON'Ts when preparing a poster

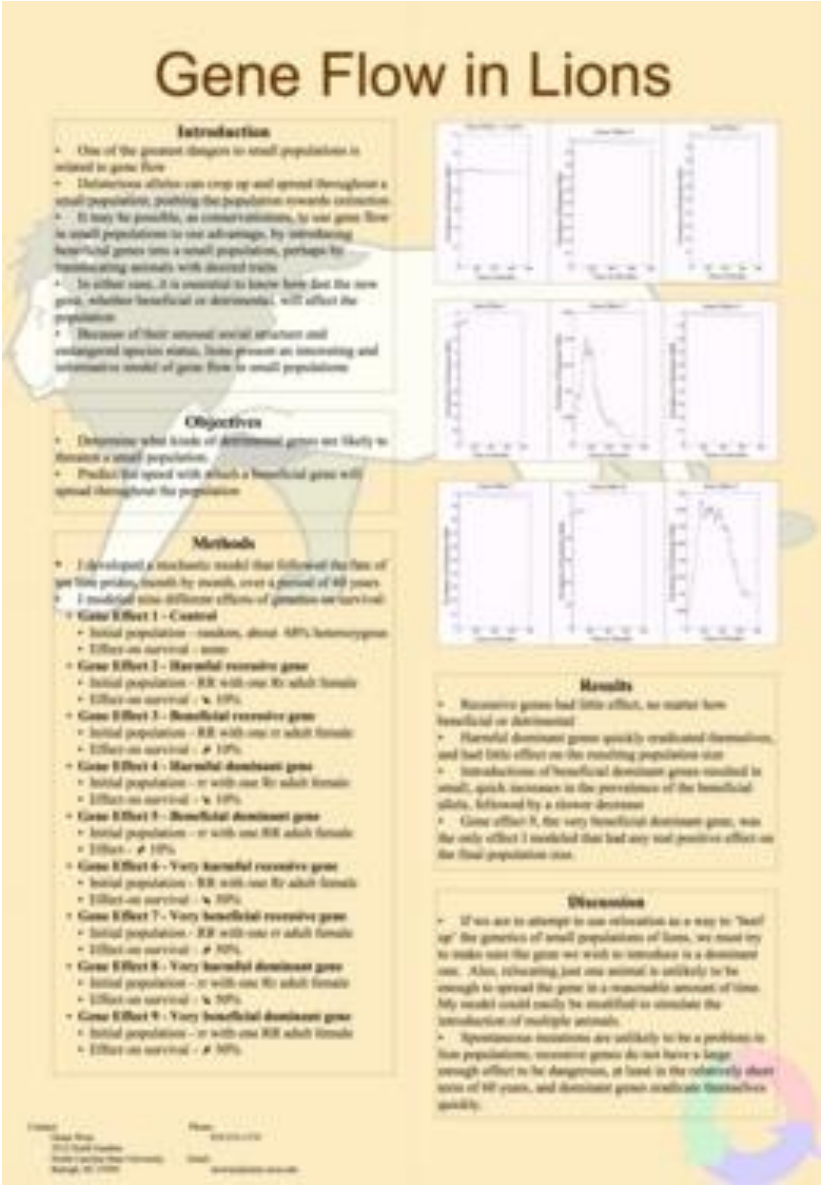
DOs

- Explain your work and findings
- Emphasize the important points
- Use logical sequence when organizing the poster
- Use appropriate fonts and adjust your figures and graphs so people can actually read them (BE CAREFUL even if it looks fine on your computer screen DOESN' T MEAN that it is the correct size)

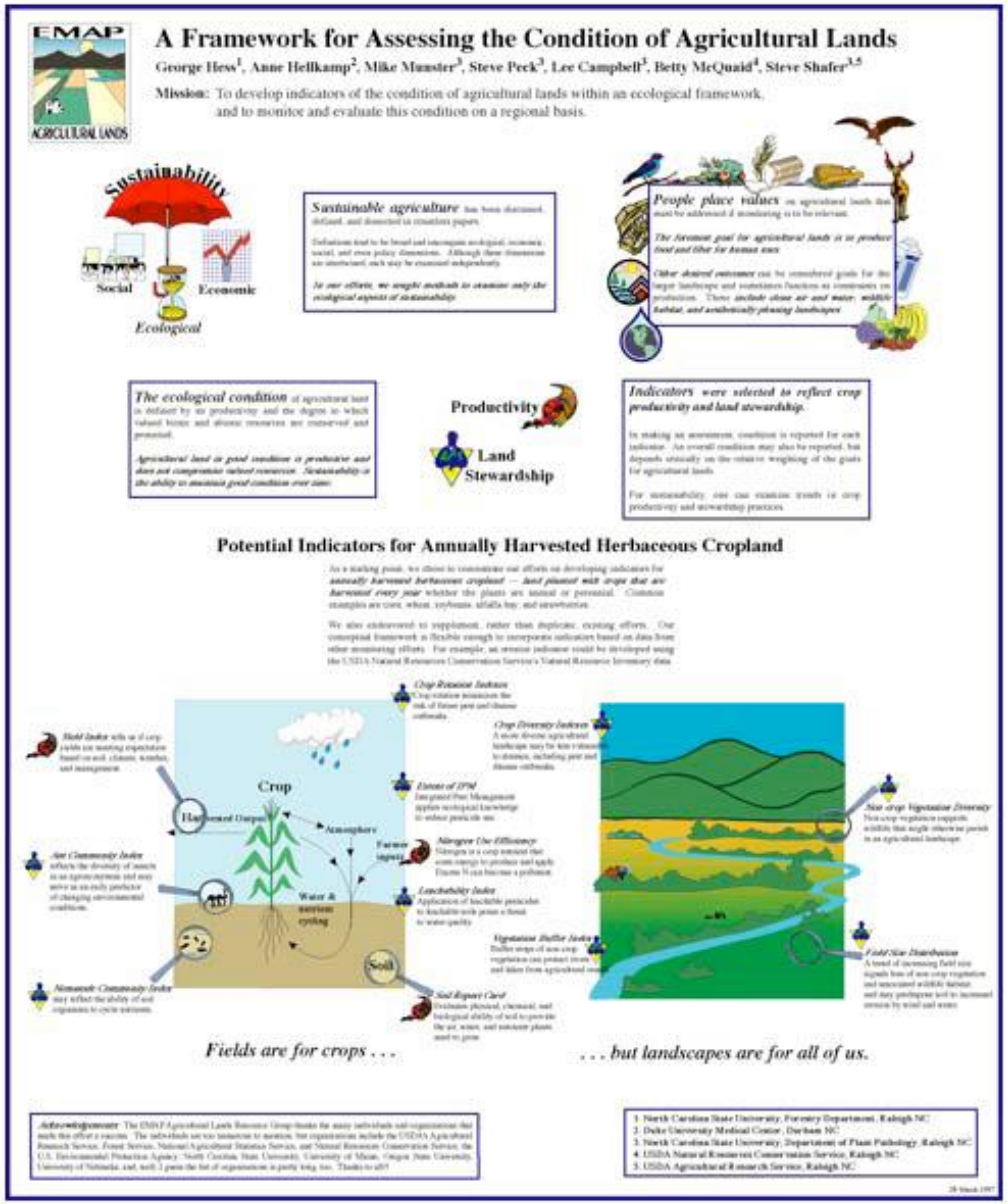
DON'Ts

- Use excruciating details that do not add significant information to your presentation
- Use tiny fonts and illegible graphs
- Organize your results in a row
- Use busy backgrounds that distract the readers

Let’s see some posters…



Text heavy and busy background



Problem with the flow

Where do I start?

Presentations

- Same basic format for writing and posters
- Explain why you do this
  - Common at conferences
  - More people can see the work than a poster at once, but more formal, less Q&A
- What are common pitfalls (read off slides ☹)
- Practice round in longer formats

Intellectual Property

- Students are more fascinated about this than we ever thought.
- Patents appear to be bright and shiny?
- Key feature: how does this work at your place

Get help unless you are a magician

- Find your IP people and get them to talk
- They often are unappreciated, and welcome the opportunity
- This is another place to address authorship and ethics in publishing

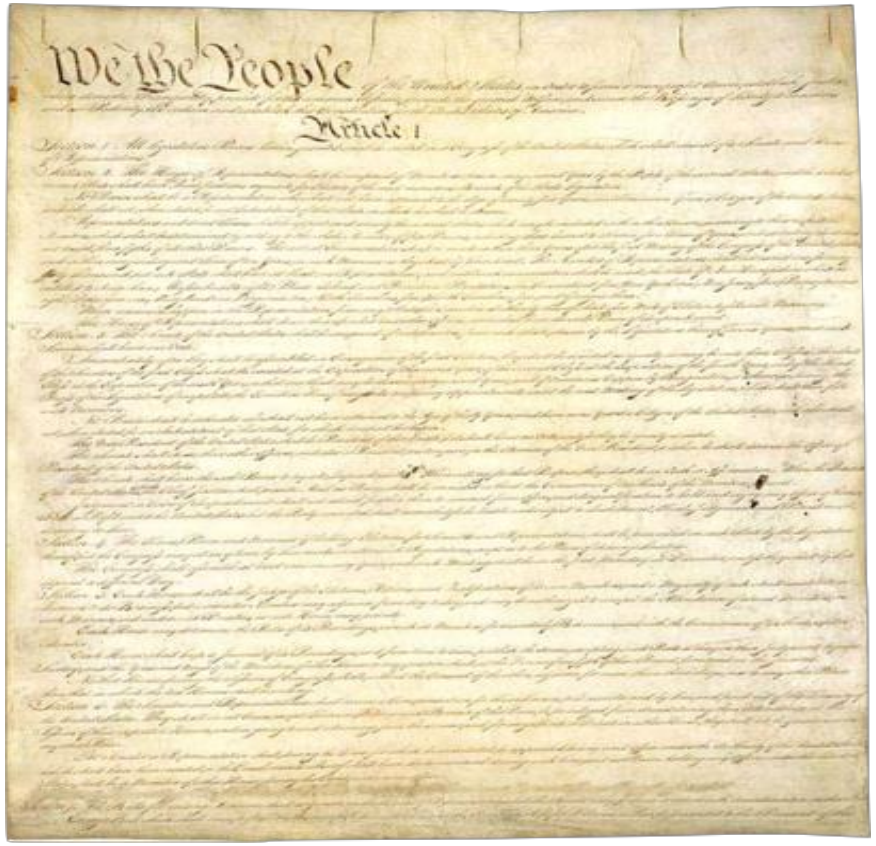
Patents

U.S. Constitution (1787)

Article I, section 8

"Congress shall have power . . .
…to promote the progress of science and useful arts,
by securing for limited times
to authors and inventors the exclusive right to their
respective writings and discoveries."

First patent laws passed in 1790


We the People

Article 1

What is a U.S. Patent?

- A document that an inventor receives from the USPTO.
- Grants a limited monopoly for the use of invention for a certain number of years (20 from filing - give or take)
- Claims are the heart of the patent

Types of Patents

- Utility: A useful invention that is a process, a machine, a manufacture, a composition of matter, or an improvement of an existing idea that falls into one of these categories.
- Design: Innovative, nonfunctional & part of a functional manufactured article.
- Plant: Any asexually or sexually reproducible plants that are both novel and non-obvious.
- Provisional: A temporary patent of the above types that “holds your place in line.”

What is Patentable?

- Processes - pharmaceutical or materials treatment.
- Machines - pacemaker, laser printers, prosthetics.
- Manufacturing Methods - water-jet drilling, plastic molding.
- Compositions of Matter - semiconductors, nanomaterials.
- And Improvements...

What is not patentable?

Phenomena of nature (lightning)

Scientific principles

How Do You Get a Patent?

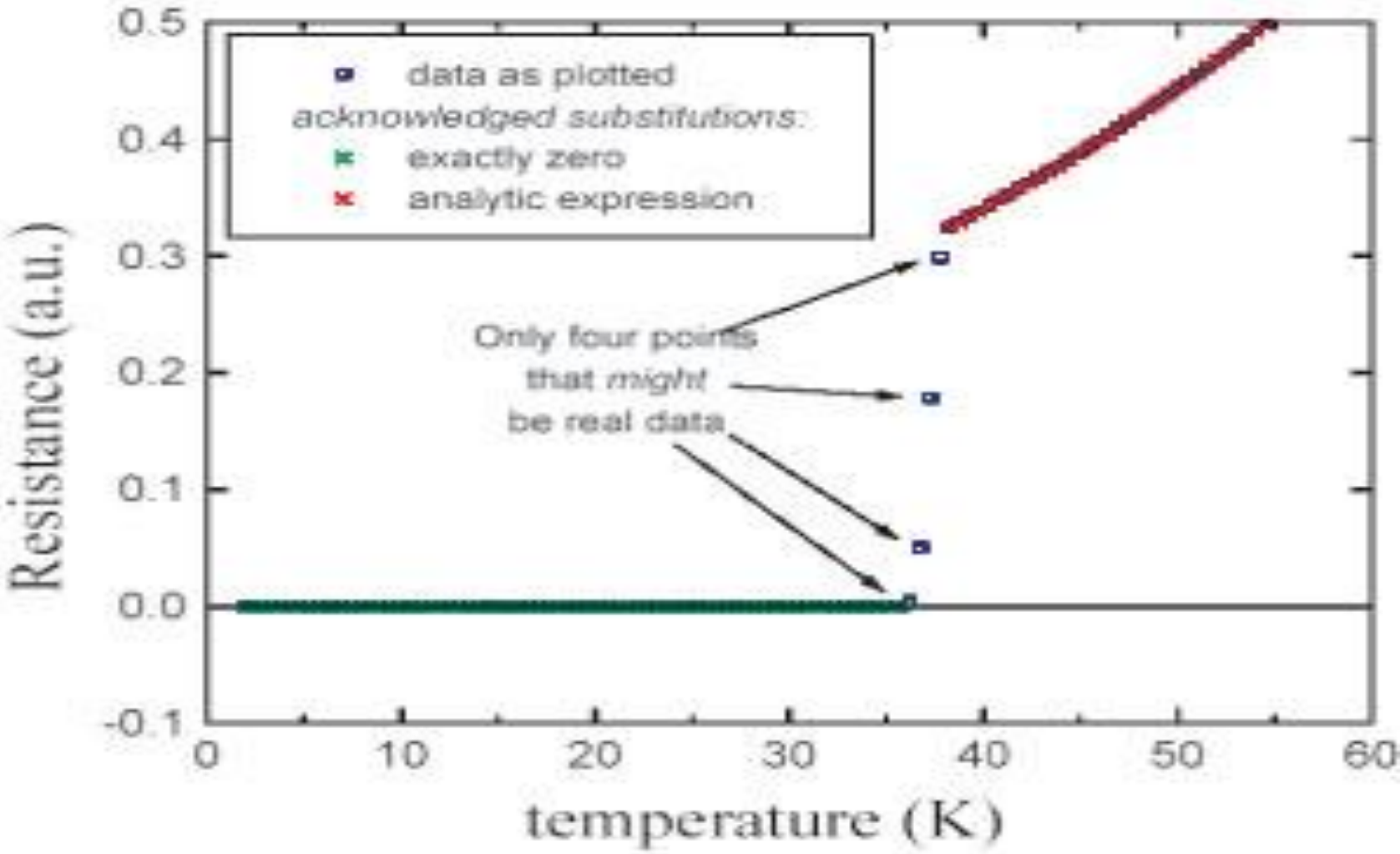
- First meet all the Criteria:
  - 1 - Not Barred
  - 2 - Novel
  - 3 - Non-obvious
  - 4 - Useful
- File (self-filing) or...
- Submit Invention Disclosure (Corp or University)
- Wait... wait... wait...

Academic fraud

- Jan Hendrik Schön and Bell Labs older example (could update unfortunately)
- https://media-bell-labs-com.s3.amazonaws.com/pages/20170403_1709/misconduct-revew-report-lucent.pdf
- Schon and co-workers published 25 papers that showed “outstanding” results. These unique and groundbreaking papers were unique, and some people thought they were “too good to be true”.
- Other researchers couldn’t reproduce them.
- Led to an investigation, appears that data was both mis-represented and substituted.

Example of questionable data

- Review panel found graphs had been mis-used



Short break

- At 3 PM we need to be in the big ballroom to see the magic happen…. ☺

University Units Facilitating Undergraduate Research

Session Objective: Review university units that facilitate & fund undergraduate research

Session Structure

4:10 – 4:30 - Conference organizers will each discuss the units on their respective campuses engaged in promoting, facilitating and funding UGR

4:30 – 4:45 – Breakout groups with Shelley, Susan & David to discuss how it works on **your** campus.

4:45 – 4:55 – Share unique insights from the breakout groups.

UCF Units Facilitating Undergraduate Research

Division of Teaching & Learning

College of Engineering & Computer Science

Burnett Honors College

Center for Initiatives in STEM (ISTEM)

Office of Undergraduate Research (OUR)

Mission: Strengthen and enrich undergraduate research activities at UCF

Programs & Funding Opportunities:

-F-Learn*
-T-learn*
-Summer Research Academy
-Summer Undergraduate Research Experience (SURF)*
-Showcase of Undergraduate Research
-Undergraduate Research Journal
-Undergraduate Research Council (student & faculty)
-Research Workshops
-Peer mentor advising
-Travel Awards*
-Student Research Grant*

Academic Advancement Programs

Mission: prepare underrepresented, 1st generation students for advanced degrees

Funding Opportunities:

-McNair Scholars Program*
-Research and Mentoring Program (RAMP)*

**provides student funding*

UCF Units Facilitating Undergraduate Research

Division of Teaching & Learning

College of Engineering & Computer Science

Burnett Honors College

Center for Initiatives in STEM (ISTEM)

Office of Diversity & Inclusion

Office of Research & Community Engagement

Mission: Recruit and retain underrepresented groups in engineering and computer Science

Mission: Promote & enhance collaborative efforts on STEM education & educational reserach

Funding Opportunities:
- Florida Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP)*
- National Action Council for Minorities in Engineering (NACME)*
- Research and Mentoring Activities (RAMA)*

Programs & Funding Opportunities:
- Honors in the Major*
- Burnett Research Scholars*
- Community-Based Research Grants*

Funding Opportunities:
- EXCEL*
- COMPASS*

**provides student funding*

Ideas for implementing course work at home institution

Some things to consider:

1) Discipline and Target Audience

   will you focus on one discipline, multi-disciplinary, broad university level, STEM, non-STEM, Engineering, first generation college students, transfer students…

2) Administrative Structure

   do you have a centralized Office of Undergraduate Research or will you focus efforts in your department, your college, work through the Honors College?

3) Recruitment

   a centralized office has access to students that are interested in getting involved in research; without staff support, you are recruiting by flyers, word of mouth, visits to classrooms, etc. This can be difficult to sustain.

Ideas for implementing course work at home institution

4) Faculty Needs – What do faculty need? Students who are prepared to conduct research so they do not have to provide and repeat this training over and over. Also, students who are motivated (they sought out this course). Approx. 20% of students who attend SRA indicate they are not interested in research. We consider this positive, now we don't waste faculty time and university resources on those students and they can proceed with something that does interest them.
5) Student Needs - What do students need? They need to know how to find and approach faculty, how to conduct themselves in the lab, the importance of scientific integrity, and all of the many things you are discussing in this workshop.
6) Mentoring – will you rely on faculty primarily to be mentors? Or a tiered structure (graduate student mentors/faculty mentors)? They should be required to discuss best practices for mentoring.

Budgeting, costs and benefits

- There are a lot of ways to consider costs and budgeting
  - Costs (per student)?
  - Retention (does that matter in budget?)
  - Building community
  - Mentoring (rewarded at your place?)

We’ve done a lot of cost models over the last 10 years

- In general we approached costs to ensure we were inclusive and economics was not a barrier
- We’ll run down what we did, and what we spent money on, and where it seemed to matter

FLBC

- The Cougar Undergraduate Research Experience (CURE)
- *One-week summer boot camp to introduce research basics*
- *$500 provided for living expenses; students who complete the summer program get $1000 for the school year to research with a faculty member.*
- *What do they want, $ or credit?* **Credit … a stipend is nice**, but might be able to offer $250 (average response: minimum would be $280)
- Quite a few said $0 (note, potentially only well off students…)
- Faculty like the $1000 MUCH more than the students (“can get it anyways”)
- Estimated steady state cost $500 per student

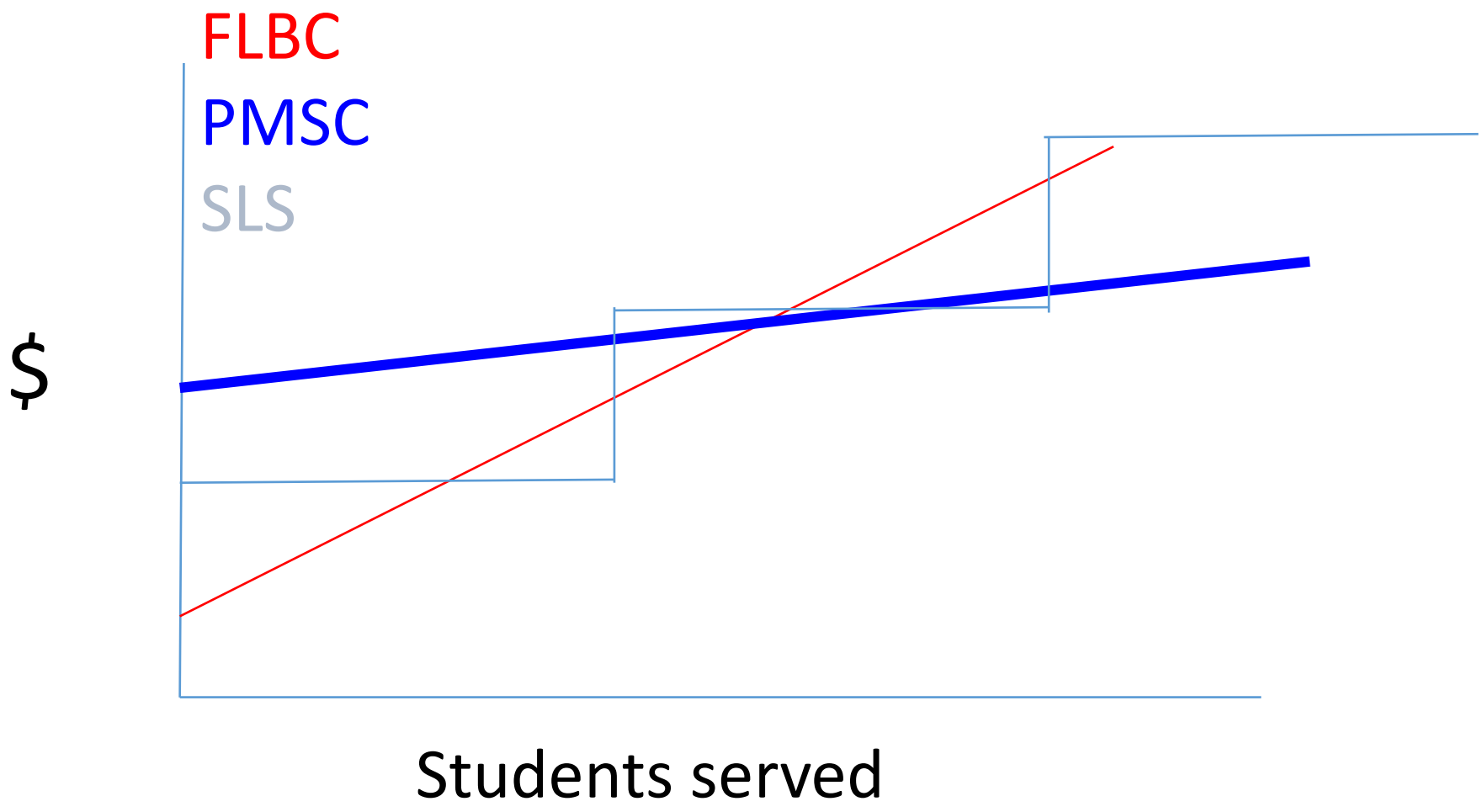
PMSC

- Hard costs are for peer mentors (≈$11/hour)
- Over the years it's ≈$75- $250 per student participant over the entire semester (mentors pre training, post SRA follow-up, publicity, housing?, etc.. Full time staff time increases real costs too, but they may be sunk costs if you have a central office)
- SRA get one credit, no charge (keep head down)
- Scalability is likely good
- Could you do this with credit for the mentors? Maybe, but we're hesitant for now

SLS

- Cost models have been TA, teaching release, etc. So can vary by $1000's.
- Could be the cheapest, or the most expensive
- Does your school work on credit hours = $?
- Because it fits into the normal school year there's comfort for the students (they know how this works, it's not weird)

Costs



Benefits (non $)

- Faculty community of UGR mentors
  - FLBC > SLS=PMSC
- Student community of UGRs
  - PMSC> FLBC > SLS
- Visibility within university
  - PMSC > FLBC > SLS
- Inclusive and diverse population
  - PMSC > SLS > FLBC (peer mentors seem to offset impostor syndrome)

Where can you get money for this?

- Federal programs
  - NSF DUE
  - REU-like “service charge” possible for providing training service (USDA, NSF, etc.) or ending events tied to training (poster sessions) In these cases a centralized unit is crucial for budgeting
- Private and corporate foundations
  - Really a school by school opportunity
- Individual giving
  - Long term plan, but UGR alumni have shown interest in giving back
- Tuition based???

5:50 Go to dinner with SRA students

- Main ballroom
- Then SRA seminar session research etiquette
- Regroup in small room at 7:05, touch base for next steps, back to LQ
- Meet again at 8:45 in the lobby of LQ if you need a ride, or if not meet at 9 AM at live oak ballroom again.