

Research/Funding Strategies for Faculty

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This session for:

New Faculty

Grad Students planning to be faculty



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CRA-W Programs

inspire and increase the success of
women & minorities in computing

600+ students & PhD researchers every year

from **250** U.S. institutions



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What does CRA-W do?

Individual & Group Research Mentoring

Undergrads: Undergraduate Research Experiences

Undergrads: Distinguished Lecture series/role models

Grad Cohort: Group mentoring of graduate students

Grad Students: Discipline Specific Research workshops

Academics/PhD Researchers: Group mentoring for early and mid career @ CMW, Grace Hopper, and Tapia



600+ students & PhDs a year



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Know Your Institution's Priorities

- What are its promotion priorities?
 - Relative weights of research, teaching, service?
 - How do publications, grants, collaborations, numbers of students graduated fit into the mix?
 - What counts as scholarship?
- Where to find priorities set out?
 - Evaluation and Promotion Guidelines
 - Mission Statements / Strategic Plans
 - Role models and mentors
- How to use them:
 - Prioritize your agenda/needs (especially time) in light of institutional priorities



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Defining a Research Program

What is the overall theme of your work?

What do you have a **PASSION** to do?

What are your short, medium, and
long-term goals?

What steps do you need to take now and in the
future to meet those goals?

Defining a Research Theme: An Exercise

Get out a piece of paper.

Come up with 1-2 sentences describing your research theme.

Spend 1 – 2 minutes

How?

Use a mindmap

Pick your favorite papers and think about what they have in common

Look for ways your students' projects connect

Does this fit your institution's view of research?

Use this theme as a way to prioritize

Starting a Research Program: Research University

- Funding Opportunities
 - NSF, NIH
 - Small and large companies
 - DOD, DOE, NASA, other government agencies
 - Clare Booth Luce, Mellon, other foundations
 - Consulting
 - Negotiate a great start-up package
- Opportunities for developing a research program
 - Organize workshops, tutorials, etc.
 - Teach special topics courses, seminars, lead reading groups
 - Write survey articles and books



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Starting a Research Program: Teaching-focused / Undergrad Institution

- Funding Opportunities
 - Disciplinary research: same as for research university
 - CS Education research: NSF
 - SIGCSE special project grants
 - CRA-W CREU program
- Opportunities for developing a research program
 - Closely integrate teaching and scholarship
 - Write textbooks
 - Organize workshops, tutorials, etc.



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Enabling a Successful Research Program

- Funding
- Reputation
- Collaboration
- Time



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Funding: What Can It Support?

- Students
- Summer salary
- Course release
- Equipment / Supplies
- Travel to conferences / meetings



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Develop Proposals

- Look for new proposal opportunities
 - Early career proposal calls (DOE, DOD + NSF)
 - Opportunities to collaborate
 - Internal funding grants and travel grants
 - Faculty Fellowships: NASA, Microsoft etc.
- Review some proposals (but not too many)
- Run high-level plans by program directors
- Learn the rules and constraints of your organization with respect to funding
 - Human subjects, environmental etc.

Top 10: How to Write a **Bad** Proposal

1. Submit a research paper as a proposal
2. Make the scope too large
3. Make the scope too small
4. Ignore agency's mission / history
5. Keep your best ideas for later
6. Ignore RFP details
7. Wait until the last minute
8. Submit scope to 2 agencies simultaneously
9. Grab as much budget for yourself as possible
10. Give up after first rejection

Proposal Writing DOs

- Include an executive summary
- Provide adequate explanation & highlight the significance/need – reviewers are technical peers – maybe not in your specialization though
- Make it clear you know the literature
- Have a hook
- Ask an experienced investigator to critique your proposal
- Keep within agency guidelines for proposal format & content
- Read abstracts of awards; read proposals and reviews of successful proposals
- Volunteer to be a reviewer



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Develop Your Reputation

Identify a strong research problem with clear short-term, medium-term, and long-term goals

Be mindful of overlap/collaborations with advisors/senior faculty

Establish & brand your lab/group as quickly as possible

Identify and mentor strong students at all levels

Recruit multiple senior mentors across the country

Publish steadily in high impact venues

- **Selectively do service that enhances your reputation**

Deliberate Networking

- Who should you meet?
 - Established researchers in your field
 - Your contemporaries
 - Representatives of funding agencies
 - People working on challenging/rich applications that need research support
- Where can you meet them?
 - At your institution / Invite them to give a talk
 - At conferences/workshops
 - At review panels, program committee meetings, etc.



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Deliberate Networking At a Meeting or Conference

- Speak! Don't just stand there.
- Engage in questions and discussions with speakers after their presentations.
- Talk to the person sitting next to you.
- Get someone to introduce you.
- Talk to people who come up to you.
- Don't just hang around with your friends.



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Build Collaborations

- Collaborations expand your mind and your reputation
- Choose people you enjoy and can work with
- Senior collaborators open doors/get grants; junior collaborators present new directions and do more work
- Be generous with co-authorship on publications and giving credit in talks
- Explore broadly, consider interdisciplinarity (but carefully before tenure)

Build Collaborations

Do

- Communicate effectively and be responsible
- Make sure you have an impactful part of the project
- Learn to multi-task and do it forever
- Have a contingency plan

Don't

- Be a “student” for someone else
- Take it personally if a collaboration does not work
- Expect collaborators to change
- Be the programmer or tech support for another discipline

Be Your Own Advocate

Present and showcase your work regularly and broadly (not just in a narrow area/field)

- Elevator speeches

- Blogging, microblogging, social media

- Departmental seminars, symposia, manager meetings

- Outreach venues

Meet program managers and organizational leaders who can have influence on your funding

Go to visioning/leadership meetings

Network your best students, reflected glory

Be Your Own Advocate

Take credit for **your** work

Avoid people who do not give you credit

Find advocates and nurture them

Own your success, brag appropriately

Push your agenda; do not take “no” for an answer or personally (take a cue from men: they hear “no” as “not now”)

Creating Research Time from Teaching Activities

- Grad/Undergrad TAs (time savings!)
- Teach courses that support your research
- Build into any class something that benefits your research
- Read research papers with students
- A student project that will benefit your research
 - Good for all students
 - Can also generate undergraduate student research



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In closing

Enjoy what you do... it's a great career
Feel and share the passion in research

Don't pull the ladder up!

Thanks to AJ Brush, Kathy Yelick, Ellen Walker, Maja Matarić, Lise Getoor, and Ashley Stroupe for content contributions

What should you do next?

Complete the GHC survey

Apply and Share your new knowledge

Follow up with someone you met here

Visit CRA-Women web site and Sign-Up
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Participate in CRA-W via Facebook,
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