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Achieving the Vision

It's never too early to plan to achieve your professed vision. Students in the fields of science, technology, engineering and mathematics have numerous career options, but how do you focus your choices? Hear from two Ph.D. scientists in the STEM fields as they share what they have learned from their personal experiences.

ILSAMP Conference

Workshop I

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Career Choices with Your Graduate Degree

- Academic
 - Institutes
 - NIH
 - Universities
- National Lab
 - (~12-15)
 - Defense, Energy, Materials, Environmental
- Company
 - Searle, Abbott, Sigma...

Ask yourself: What do you want? How do you envision yourself in research?

Distinctions Between Post-Grad Choices

	University	Company	National Lab
Institute Goal	Publish or perish	<ul style="list-style-type: none"> ■ Product or perish ■ Patents 	<ul style="list-style-type: none"> ■ Research to benefit society ■ Patents
\$\$	\$	\$\$\$	\$\$
Funding	Grant writing	<ul style="list-style-type: none"> ■ Big- Researcher does not have to look for funding ■ New- SBIR grants 	<ul style="list-style-type: none"> ■ Grant writing ■ Direct from gov't project managers
Projects	<ul style="list-style-type: none"> ■ Basic Research ■ One project focus ■ Follow your interest 	<ul style="list-style-type: none"> ■ Product Driven ■ Projects change ■ Follow company's interest 	<ul style="list-style-type: none"> ■ Tech and Basic ■ Projects change ■ Follow your interest as aligns with Lab mission
Feather in the cap	Prestige	<ul style="list-style-type: none"> ■ No funding worries ■ Can spend whole career there 	<ul style="list-style-type: none"> ■ Great benefits ■ Can spend whole career there

What I did...

1. Ph.D. in basic research, biochemistry, signal transduction of vision, crystal structure enzyme kinetics of wild type and mutant
2. Interviewed at one of each
 - Abbot position in product quality troubleshooting
 - Argonne crystal structure enzyme kinetics of wild type and mutant
 - Northwestern signal transduction of cancer
3. Argonne
 - Good platform for either academic or company
 - Ended up staying (~10% of post-docs become staff)

Others...

Chem E Ph.D.- straight to professor

Chem E Ph.D.- Argonne Post doc, job, professor

Biochemistry Ph.D.- one-two post-docs at university, professor

Chemistry Ph.D.- Argonne post-doc, professor

Chemistry Ph.D.- Argonne post-doc, company

Masters- Career Options

- Flexibility to go to any research institute!!
- Labs look at your skill sets to fit their needs
- Experience helpful, but not necessary if skill set is needed
- Look at culture of work environment, does it fit you?

Ph.D.- Objective of a Post-Doc – temporary position

- Learn how to become an independent investigator, skills
 - *Funding, Publishing, Managing*
 - *Job security depends on you to get your own funding (not company)*
- Stepping stone in your career trajectory to independence
 - Career focus: cancer, materials, batteries...
 - Career is a linear progression from grad, post-doc, scientist
- Continue publishing or begin publication track record in chosen field

At the post-grad interview

- Do your homework beforehand
 - Read their papers, patents
 - Web site
 - How does your interest intersect with theirs in research
- Ask a lot of questions about the research, culture of the institute
- Talk to lab without PI, get a feel for how they regard/him her
 - Unspoken cues
- You're also interviewing them to see if they fit with you: Ask same questions of advisor and lab:
 - Ph.D.s- Find out if get grant writing experience
 - Masters- confirm you get co-authorship on papers
 - *Different PIs have different rules of thumb – intellectual contribution only or any experimental contribution*
 - Expected work hours, does it match your style, can you adjust?
 - Family responsibilities understood
- PI Personality- approachable, management style (Hands on, hands off)
- Project piques your interest

Master's- Role in the Lab

- No stress to find funding
- Contribute experimental results needed to get funding and papers
- Manage students and technicians
- Lab manager
- Can focus on lab work, not writing grants
- Experimental expertise important
 - Expand: Continue to grow your expertise, keep up to date on latest methods/techniques, so will remain attractive to any potential employer
 - Focused: Become an expert at several techniques
- Job security depends on PI's funding, company profits
- Keep yourself current with published literature

Ph.D.- Things to Do in your post-doc

- **Lab Results, Publish!!!!**
- Learn techniques
- Read or write grants from multiple sources
 - Find out how the lab gets its funding
 - how funding game works, learn what is successful and what is not
- Manage another person
 - technician, prof on sabbatical, student
- Present/go to meetings – Network
 - Collaborations seeded at meetings, small meetings more effective
- Go to seminars in and outside your field – perspective, ideas, see how others think
- Choose your mentor
 - well funded mentor Can learn mechanism of their success for that funding agency
 - Personality match
 - good mentor
- **Start to look for funding now!!!!**
 - Web, NSF, NIH, ACS, DOD, DOE, young investigator, fellowships, minority, women

Don't work with blinders on, focus on research but see how PIs run their lab, what works, doesn't work. Learn from what you see.

Nothing is set in stone

- Career path does not fit a mold
- Traditional route
- Atypical route

- Keep vision of goal in mind and can get there with good science