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Assessing My Personal Strengths

Individual/pairs activity

Introduction to Career Pathways: Agenda

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- Understanding myself
- The four main career pathways
  - Working in industry
  - Working in academe
  - Working in government
  - Working for yourself
- Developing a personal network

Employment in the Four Main Pathways

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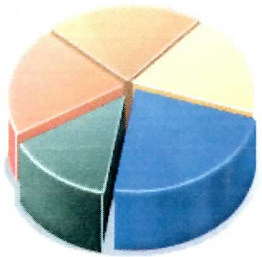

Need pie chart representing relative employment in all four pathways

- Industry: 52%
- Academia: 39%
- Government: 8%
- Self-employed: 1%

Typical Salaries for Ph.D. Chemists

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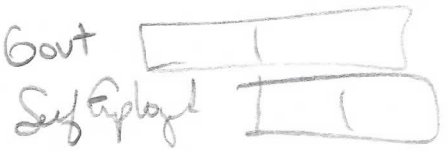
Years since B.S.

	5 to 9	25 to 29
Industry	$81K	$116K
Academe • 4-year school • Ph.D. institution	 • $50K • $65K	 • $76K • $110K



need current data

Six-Year Trends at ACS Job Fairs

STIFF COMPETITION

At ACS job fairs, job seekers still outnumber openings

	TOTAL CANDIDATES	EMPLOYERS	POTENTIAL OPENINGS	INTERVIEWS SCHEDULED
2002				
Orlando	867	131	436	3,146
Boston	1,231	137	521	4,685
2003				
New Orleans	1,151	96	305	1,751
New York City	1,374	97	291	1,673
2004				
Anaheim	1,281	121	271	1,605
Philadelphia*	1,494	107	303	1,602
2005				
San Diego	1,296	88	189	1,291
Washington, D.C.	1,927	97	289	1,685
2006				
Atlanta	1,256	72	197	1,199
San Francisco	1,213	104	290	1,499
2007				
Chicago	1,456	73	683	1,139
Boston	1,526	126	913	1,839

NOTE: Figures for interviews scheduled for 2003 and later may not compare with previous years because of implementation of a computerized registration and communications system. ▲ The National Employment Clearing House officially became the Chemjobs Career Center beginning with the Philadelphia meeting. **SOURCE:** American Chemical Society Department of Career Management & Development

update

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Trends in Industry Job Market

- Focus on cost reduction and "core competencies"
  - Selling off unprofitable businesses
  - Increased outsourcing of R&D and other functions
  - Reliance on contract workers
  - Fewer "layers" in organizations; more leveraging resources
- Heightened attention to domestic and international competition
  - Focus on quality, customer service, inventory control and innovation
  - Manufacturing is being globalized
- Shortened product life cycles
  - Increased emphasis on cross-functional collaboration
  - Increased requirement for communication and non-technical skills

old!

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Industry Job Market Outlook

Increasing Demand

- Pharmaceuticals and biotech
- Contract research and testing services
- Toxicology
- Information specialties
- Patent law
- Marketing and sales
- Specialty chemicals for electronics
- Project-focused jobs
- Energy research

Decreasing Demand

- Basic chemicals
- Plastic and synthetic materials
- Agricultural chemicals
- Paints and allied products

Source: U.S. Bureau of Labor Statistics

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Types of Industrial Companies that Hire Chemists

- Pharmaceutical
- Foods – pet foods, additives
- Coatings and adhesives
- Process manufacturing of all kinds

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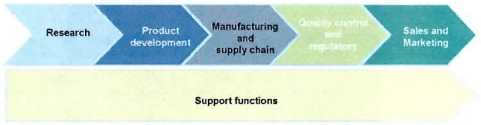
lg vs small companies

Research in Industry: Types and Spending

- Basic Research ($9 billion)
  - 7+ years before commercialization
  - Advance scientific knowledge, without specific commercial objectives
- Applied Research ($41 billion)
  - Results expected in 4-7 years
  - Discover new scientific knowledge that has specific commercial objectives
- Product Development ($169 billion)
  - In the marketplace in 1-3 years
  - Use research findings for the production of useful materials, devices, systems, etc.

Careers in Industry



Research	Product development	Manufacturing and supply chain	Quality control and regulatory	Marketing and sales	Support functions
• Bench scientist • Research investigator • Director of project management	• Medical writer/ editor • Clinical trial associate • Research clinical associate • Clinical trial business manager	• Planner • Supplier quality engineer • Formulation development scientist • Logistics manager	• Quality assurance manager • Validation specialist • Regulatory affairs associate • QC associate	• Market research analyst/manager • Product manager • Medical information specialist • Medical science liaison	• Business development manager • Contracts administrator • Financial analyst • Human resources manager

Bench Scientist: Daily Responsibilities

typical

weekly?
monthly?

Typical Dual Ladder in Industry

we have this

Insert slide here

Advantages and Disadvantages of a Career in Industry

Advantages	Disadvantages
• More job openings than in other pathways	• Less job security than academic or governmental pathways
• Good salaries generally	• Sometimes relocation is required
• Variety of career options within a given company	• What else?
• What else?	

Locating Jobs in Industry

- Company websites
- Professional societies
  - ACS Career Jobs Database
  - Eastern Analytical Symposium
- Professional publications
  - *C&EN*
  - *Science*
- Electronic bulletin boards
  - hotjobs.com
  - CareerBuilder.com
  - money.cnn.com/service/careerbuilder
- Trade shows and technical meetings
- Campus interviews and career fairs

What Counts in Industry

- Technical competence ~~(the *sine qua non*)~~
  - Depth and breadth
  - Ability to define and solve problems
  - Often companies are looking for people with postdoctoral experience
- Leadership/motivating others
- Working hard and working smart
- Ability to communicate orally and in writing, and influence others
- Ability to work well in teams
  - Interactions with people of diverse backgrounds
  - Ethical behavior and personal integrity

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Imagining Yourself in Industry

Individual to pairs activity

Trends and Outlook for Academic Jobs

- Growing or shrinking?
- Which segments are most promising (community colleges?)
- More use of non-tenured faculty?

Types of Academic Institutions

Type of Institution	Number
Doctoral Universities	261
Master's Colleges and Universities	611
Baccalaureate Colleges	549
Associate Colleges	1669
Specialized	766
Other	85

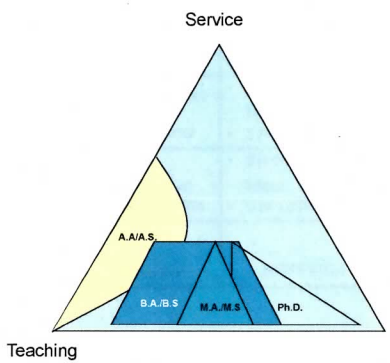
Source: Carnegie Foundation

year?

Typical Academic Career Path

Tenure Track	Non-Tenure Track
Professor	
Associate Professor	
Tenure Decision	Term Appointment
Assistant Professor	Adjunct Professor
Post Doctoral Appt.	Sabbatical Replacement

Typical Job Responsibilities



What Counts in Academe?

Job Responsibilities and Type of Institution

	Teaching	Research	Service
Ph.D. granting	• 3 to 6 hours per week (lecture)	• 6 to 10 pubs in 6 years • $100K+ in grants	
Baccalaureate	• 10 to 15 hours per week (lecture and lab)	• 2 to 3 pubs in 6 years • $20 to 60K grants	
Associate	• 20 plus hours per week (lecture and lab)	•0 to 2 publications	

Advantages and Disadvantages of a Career as an Academic

Advantages	Disadvantages
• Independence	• Lower salaries generally
• ~~Complete~~ Job security after tenure	• Less mobility than other pathways
Sabbaticles	• Long hours

Locating Academic Jobs

- C&EN
- Chronicle of Higher Education
- Your advisor

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Imagining Yourself in Academe

Individual to pairs activity

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Trends and Outlook in Governmental Jobs

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- Main types
  - R&D jobs
  - Project management jobs
- Overall growth
- Relative federal vs state or local
- Areas of special interest

NGOs ?

Examples of Governmental Jobs

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Federal	State	Local
•		

Typical Governmental Career Paths and Salaries

The Governmental Hiring Process

Finding a Governmental Job

What Counts in Government

- Ability to get funding in some cases
- Teamwork and collaboration

Advantages and Disadvantages of a Career in Government

Advantages	Disadvantages
• Great job security	• Relatively fewer jobs than in industry
• Ability to contribute to the nation or community	• ~~What else?~~ Bureaucracy

Imagining Yourself in Government

Individual to pairs activity

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Trends and Outlook for Entrepreneurial Ventures

- Success rate for new ventures?
- What areas are especially promising?

Main or supplemental income?

Examples of Entrepreneurial Careers

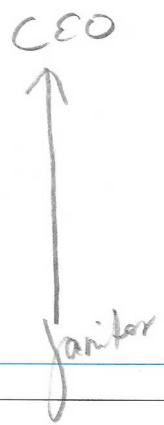
The Process for Starting Your Own Company

- Develop concept and business plan
- Get financing
- Decide on a legal form
- Get customers
- Set up accounting system

Test Product
Determine market
advertise

Exit strategy

The Typical Responsibilities of an Entrepreneur



What Counts for Being an Entrepreneur

- Ability to gain funding
- What else?

Advantages and Disadvantages of a Career as an Entrepreneur

Advantages	Disadvantages
• Great independence	• Often, extremely high risk • Requires personal investment

Great Control Great Responsibility

Imagining Yourself an as Entrepreneur

Individual to pairs activity

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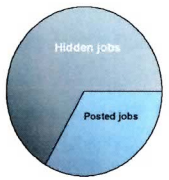
Locating a Job: Hidden Jobs

- Evidence suggests that at any given time about two-thirds of available jobs are "hidden" (that is, not advertised or posted)
- Jobs are "hidden" because:
- Other positions have priority
  - Advertising funds are limited
  - Management is too busy
  - Job is proposed, but not yet budgeted
- Finding the "hidden" jobs: networking



Networking: Where to Start

- ACS national meetings: attend session topics of interest and engage presenters and other attendees
- Local section meetings: contact people in your geography
- On campus: establish contacts through professors, career office, alumni association

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Networking: Some Tips

- Set an objective of meeting at least two new people per event you attend
- Engage people in a conversation about themselves, not about you.
- Print and exchange business cards (order yours on-line or at a big-box office supply store)
- Ask for a follow-up contact (a "networking conversation")

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The Purpose of the "Networking Conversation"

- To build your network
- To signal your availability and interest
- To learn about a company and a job position

Important tip: The purpose of the Networking Conversation is ***not*** to ask for a job.

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Sample

~~Types of~~ Questions ~~to Ask~~

- Questions about the organization
  - How does this organization differ from its competitors?
  - How would you describe the culture of this company?
- Questions about the job
  - What does your typical day look like?
  - What are your main responsibilities?
- Questions about the person
  - What do you like best about your job? What do you find most challenging?
  - How did you get your job? What would be the next step in your career?
- Questions about your own fit for the job
  - What are some typical entry-level job titles and functions?
  - What kind of advice do you have for someone pursuing a job in this area?
  - What would you say are my strongest assets for a job in this area?

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Practicing a Networking Conversation

Pairs activity

The Next Step ...

~~Getting Started~~

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- Identify the priority career pathway and begin process of further investigation
- Begin your job search 12 to 18 months in advance of finishing your degree
- Start developing your personal network
- Develop a resume (or vita) portfolio that can be used as the basis for tailoring documents for a specific position

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Introduction to Career Pathways: Review

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What Career Services Are Available from ACS

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- Employment services
- Personalized career assistance
- Workshops and presentations
- Workforce analysis
- Local section career program
- Career-related publications

acs.org/careers