Careers Workshop  
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“Luck is the intersection of preparation and opportunity.”

This workshop will describe some of the opportunities give a few tips about preparation.
My Story

BS Physics, West Virginia Wesleyan College 1972
PhD Astrophysics, University of Colorado 1978
Post Docs
  1978 - 1980 McDonald Observatory, U of Texas
  1980 - 1983 Space Astronomy Lab, U of Wisconsin
Instrument Scientist, STScI 1983 - 1985
Systems Engineer, Ball Aerospace, 1985 - present,
   Civil Space Systems Advanced Projects Office
   HST instruments
   Next Generation Space Telescope (now JWST)
   TPF

Types of things that I do:

  liaison between science, engineering and management
  design studies and proposals
  analysis and modeling of instrument performance
  calibration, testing, verification
  documentation, publication
  education and public outreach
Aerospace Industry at a Glance

Markets & Customers
  Civilian - NASA, NOAA, FAA etc.
  Defense & Intelligence
  Commercial - Remote Sensing, Communications

Connections to Astronomy
  Entire missions
  Spacecraft
  Telescopes
  Instruments
  Detectors
  Data systems
  Operations

Astronomers have prospered at Ball
  Engineering & Scientific Disciplines
    Programs
    Internal research & Development
  Program and Corporate Management
  New Business, studies, designs, proposals
Your intellectual assets have great value

Specific technical skills, optics, electronics, cryogenics

Specific computer skills, programming, web, software packages, systems management

Mathematical and numerical analysis and modeling

Experiment design and execution

Quantitative interpretation and inference from experimental data

Publication and documentation of results

Proposals

Communication, listening, teaching skills

Teamwork

Understanding and reasoning from fundamental principles

Multidisciplinary understanding

Continued learning and new interests

Enthusiasm for the work
Perspectives on a career in industry

many interesting projects, many terrific people

opportunities to participate in exciting current programs

tasks may be more structured and assigned, especially when you are new

day to day activities are pretty ordinary, but the big picture is very satisfying

professional societies, conferences, publications less highly regarded than in academia

less opportunity for self-directed, individual, original research, but there are often affiliations with nearby universities

compensation generally good, salary, benefits, vacation especially starting packages
companies compete with each other often located in high cost of living areas
no probationary period, but no tenure either

accountability, performance reviews tend to be more formal, especially first few years

good opportunities for promotions, raises etc.

as little or as much responsibility as you can handle

entrepreneurs and leaders do very well

many opportunities in management and business areas

organizations more fluid than academic structures
  frequent reorganizations within one company
  mergers, acquisitions etc. between companies

emphasis on business concerns & practices
  contracts, schedules, budgets, deliverables
  direct and overhead expenditures
  labor accounting, time cards

physical infrastructure usually modest (buildings, offices)

professional resources are usually pretty good
  (computers, software, libraries etc.)
Observations about hiring processes

Four common entry paths
  Intern and co-op programs
  Personal contacts through existing company projects
  Company recruiting
  Unsolicited resumes

Agencies can be useful in limited situations, usually not for entry-level positions

Typical sequence

initial contact, job fair on campus, recruiter at meeting,
resume to HR, forwarded to managers
telephone interview

on-site visit for formal interviews and tour (2 days) - be prepared for this part

  potential functional department
  potential programs
  potential managers & coworkers
Human Resources completes formal process

application, benefits, relocation policies

realtor, local area, housing, schools, family concerns

check credentials & references

offer

negotiations

get to work
Some advice about approaching industry

Be familiar with the field
  agencies that fund and manage programs
  companies & institutions that are the players
  relationships, primes, subs, vendors, supports
  professional societies, meetings, publications
  history, current, future

Research a company before making contact
  Web sites, annual reports, trade magazines
  university placement offices
  student chapters of professional societies
  corporate members of professional societies
  technical and scientific publications by employees

Be knowledgeable about history, projects, technologies,
facilities, customers

Visit informally - most have visitor’s centers, tours etc.

Take advantage of companies recruiting efforts &
presence at meetings

Personal contacts can help (networking)
  alumni from your schools
  faculty or students familiar with company’s projects
  family, friends
Advice about resumes and interviews

Take advantage of lots of general advice about resumes

Demonstrate familiarity with and interest in the company

Express interest in specific opportunities if possible
  recent wins, future studies and proposals
  specific technologies you can help with

Identify all skills, be specific

Especially identify cutting edge skills, you are the next
generation of employees

Identify hobbies, recreation, outside interests

Community service is a good plus
  science fair judge, tutoring, mentoring
  tours, lectures, interviews

Citizenship or residency status, security clearance
Follow up with call to HR representative
    a lot of the process is automated these days
    make a human contact

Resumes are kept active for about six months

Companies are usually looking to fill specific needs, but
often will hire good people with expectation of finding a
good fit later.

In addition to specific technical skills, companies find the
following things attractive:

creativity
problem solving skills
team player
communication skills, be articulate in speaking and writing
self motivation
enthusiasm, enjoyment of the work
desire to learn more and advance

There are endless opportunities. Learn to
recognize them. Be prepared to take
advantage when they arise. Good Luck.