Starting Life in the Lab

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References

- At the Bench: A Laboratory Navigator. Kathy Barker. Cold Spring Harbor Laboratory Press 1998.
- Personal Experience

On the Job Training

- Common to feel like fish out of water
- DO NOT FREAK OUT!
- Important to know…
  - Lab Safety/Animal Use
  - Responsible Conduct
  - Ethical behavior
  - Who is in the lab
  - What to wear
  - Who will teach you
  - What to ask
  - How do you “fit in”
  - How you will be evaluated….

Online UTSA Lab Safety

- http://www.utsa.edu/Safety/#/laboratory/training

- Courses required depend on lab.
- Will need to take some or all of the following:
  - Hazard Communications & Laboratory Safety (SA 443)
  - Biological Safety and Bloodborne Pathogens for Researchers (SA 467)
  - Hazardous Waste Generator Training (SA 401)
  - Laser Safety Training (SA 465) (Labs with lasers)
  - UTSA Radiation Safety Training (SA 433) (Labs with radiation)

General Safety

- No eating, drinking, smoking in lab
- Wear
  - Long pants/sleeves and closed shoes
  - Natural fibers (if near fire)
  - Lab coats as needed
    - In lab – remove when leave lab
  - Gloves when handling chemicals
- Note Biohazard or Radioactive signs
- No food in research refrigerators

Animal Care and Use

- Required for work with higher vertebrates
- Online and “Hands On”
- Multi-step
- Complete as soon as possible
- http://research.utsa.edu/oric/iacuc/training.php
- Can enter lab before finishing, but animal use will be restricted

Responsible Conduct at UTSA

- Training depends on what grants your PI has
- http://research.utsa.edu/oric/rcr/
- http://research.utsa.edu/oric/rcr/training.php
- Ask what you must take
- Complete it as soon as possible

General Laboratory Ethics

- Never make up or “fudge” data
  - Even if you make mistake
  - Even if mentor is annoyed
  - Even if you feel pressured
- Always record ALL data and experiments
- No Plagiarism - Let your work be your own
- Never mislead mentor
- Keep well-maintained lab notebook

Who is in the Lab?

- The Principal Investigator (P.I.)
- Research Scientists (PhDs who work for PI)
- Postdocs (“Internship” for PhDs)
- Lab Manager (PhD or not)
- Technicians
  - Know what you need to know
  - Respect them
- Graduate students
  - M.S.
  - Ph.D.
- Undergraduates
- Other visiting people

Things to ask about

- Dress practices for that lab
- Time others are in the lab
- Eating areas and food storage
- Computer use policies
- Chemicals: location, who makes stock solutions, pH measurement, weighing conventions, ordering
- Trash disposal: sharps, biohazard, recyclables, glass
- Glassware policies: where found, washing, autoclaving
- Laboratory coats: required, provided, cleaning
- Lab notebook: provided, format, copies, non-removal
- Photocopying and printing

Laboratory Instruction

- Some done by observation
- Generally a laboratory member will instruct
- Take detailed notes!!!!
  - Names
  - Equipment settings
  - Incubation times and temps
  - Locations of chemicals and reagents
  - Instructions
- Ask questions during instruction times
- Be polite about subsequently interrupting
- Do NOT mess up by not asking question

Things to Do Early On

- Read papers that you are given
- Cooperate with university requirements
  - Laboratory/radiation safety courses
  - Animal Care and Use
  - Responsible Conduct
- Learn what is expected of you
- Learn techniques
- Do an experiment
- Learn How to Fit in….

How to Fit in Well

- Work the hours you say you will
- Attend laboratory meetings
- Show up (on time!) for training appointments
- Don’t keep comparing this lab to another lab
- Finish your experiments before leaving lab
- Clean up before you leave
- Ask permission before you use someone’s personal pipettors, buffers, reagents/chemicals
- Return common-use chemicals/equipment to their correct location
- Re-make or notify someone if you use up a solution or chemical
- Admit it when you make a mistake or break something

Fitting In II

- Be polite with your phone (talk in office, quiet notifications)
- Minimize social media use
- Don’t be loud or engage in horseplay
- Don’t read others’ lab notebooks without permission
- Sign up when you need to use common equipment
- Don’t use lab copiers for homework
- Read scientific papers in the lab (not novels/newspaper)
- Don’t play computer games in the lab

Fitting In III

- You are a part of laboratory family
- Participate in laboratory socialization
  - Tea
  - Coffee
  - Sports
- Maturely handle lab interpersonal interactions
- Participate in lab meetings
- Complete laboratory responsibilities
  - You may have a job to do in lab

Lab as a Mini-Society

- Variable levels of maturity
- Variable strengths
- Variable social skills
- Variable insecurities

- Your goal:
  - To be mature, hardworking, and effective

- Key: Communication!

Benefits of UG Research

- **Academic:**
  - **Enhances Science Education/Validates coursework**
  - **Intro to balancing school and research**
  - **Deeper Faculty contact/mentoring**

- **Personal:**
  - **Self-confidence**
  - **Maturity**
  - **Knowledge that you can have an impact**
  - **Generally, an increase in motivation**

- **Professional**
  - **Observe a “high level” career**
  - **Learn to speak like a professional**
  - **CV/Resume that stands out**
  - **Letters of recommendation**
  - **Friends/network of scientists**
  - **Publications**

- **Doors open into Grad School or Jobs!**