



# RUTGERS

## Effective Mentoring of Undergraduates

**PLEASE SIGN IN ON GOOGLE FORM IN CHAT**



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## Introductions

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## Effective Mentoring for Undergraduates Learning Goals

Attendees will be able to:

- 1) Define what mentoring is and the different kinds of mentoring
- 2) Discuss practical ways to mentor an undergraduate
- 3) Actively analyze case studies
- 4) Develop follow-up plan of action / sign up for Microbadge



What is the primary reason you choose to mentor an undergraduate in research?

- Someone is assigned to you
- There is a project that needs help
- You want to give back
- You want to gain supervisory experience

Zoom poll

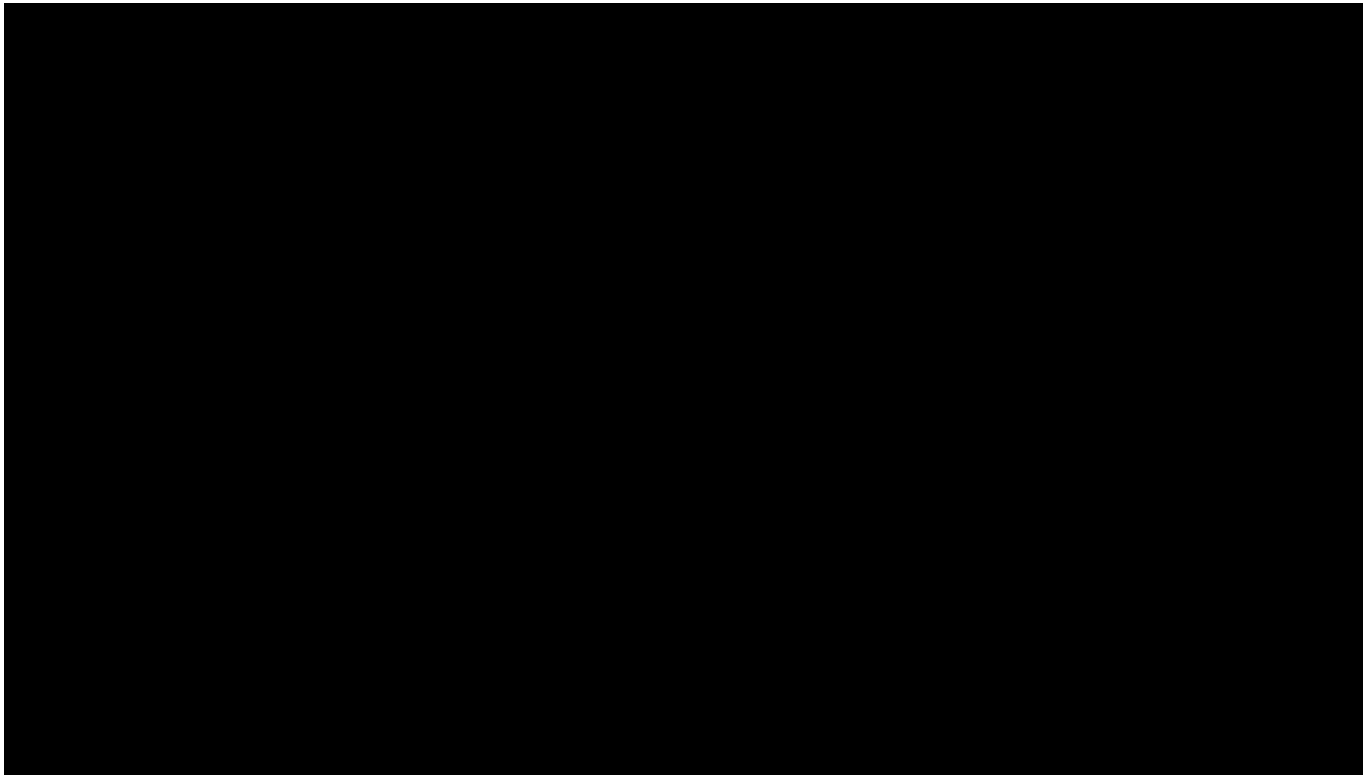


## Mentor Defined

- A mentor is a person, often more experienced, who can serve to offer training, advice, and guidance, through discussions, and through interest in the mentee's goals and experiences.
- An effective mentor builds a two-way relationship with a mentee over the long-term based on trust.
- To an undergraduate, a mentor can play a critical role in shaping the experience.



Video: <https://vimeo.com/336213022>



## Small Group Discussion in Breakout Room for 10 min

- Introduce yourself
- What challenges might you face when mentoring undergraduates?
- What principles are important in mentoring relationships?
- Each group will report top 2 challenges and principles so pick a representative to report out
- Ground rules for breakout rooms



What challenges and principles are important in mentoring relationships?



## What principles are important in mentoring relationships?

1. Aligning Expectations
2. Promoting Professional Development
3. Maintaining Effective Communication
4. Assessing understanding
5. Mentee Self-Efficacy
6. Addressing Diversity
7. Fostering Independence
8. Navigating Mentoring Networks

# Mentoring Contract



Template pasted in chat

## Undergraduate Mentee Contract\*

\* Adapted from Branchaw, J. L., Pfund, C., and Rediske, R. (2010), *Entering Research: A Facilitator's Manual: Workshops for Students Beginning Research in Science*, Chapter 2 Aligning Expectations, W.H. Freeman & Company

Undergraduate Mentee:

Graduate or Postdoc Mentor:

This contract outlines the parameters of our work together on this research project.

1. Our major goals are:

A. Research project goals:

B. Mentee's personal and/or professional goals:

C. Mentor's personal and/or professional goals:

2. Our shared vision of success in this research project is:

3. We agree to work together on this project for at least \_\_\_\_\_ semesters.

4. The mentee will work at least \_\_\_\_\_ hours per week on the project during the academic year, and \_\_\_\_\_ hours per week in the summer.

The mentee will propose his/her weekly schedule to the mentor by the \_\_\_\_\_ week of the semester.

If the mentee must deviate from this schedule (e.g., to study for an upcoming exam), he or she will communicate this to the mentor at least \_\_\_\_\_(weeks / days / hours) before the change occurs.

5. On a daily basis, our primary means of communication will be through (circle):  
face-to-face / phone / email / text

6. We will meet one-on-one to discuss our progress on the project and to reaffirm or revise our goals for at least \_\_\_\_\_minutes \_\_\_\_\_time(s) per month.

It will be the (mentee's / mentor's) responsibility to schedule these meetings. (circle)

In preparation for these meetings, the mentee will:

In preparation for these meetings, the mentor will:

# 1. Aligning Expectations

- Setting clear relationship expectations
- Goals of project
- Estimating mentee ability
- Enhancing mentee skills



## Suggested discussion:

- Ask why they want to do research
- Determine prior background and skill set of undergrad and tailor project accordingly
- Give background reading, explain repeatedly, and be wary of jargon
- Teach how to critically read the literature
- Explain what skills will be learned
- Discuss what success in this research experience look like to each of you
- Explain policy for authorship on posters and papers

## 2. Promoting Professional Development

- Helping network effectively
- Setting career goals
- Helping establish a work/life balance
- Helping mentees acquire resources

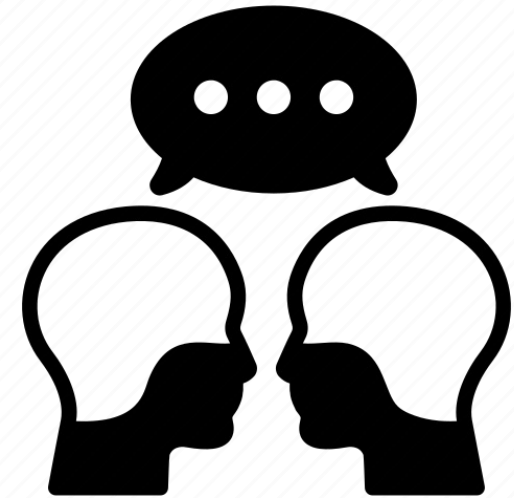
### Suggested approaches:

- Bring them to seminars and introduce them to other scientists
- Help them explore career options and create an Individual Development Plan
- Assist with writing recommendation letter
- Understand that exams or personal issues may require time off from lab
- Ensure they have lab safety including Covid protocols, CITI training, IRB approval, IACUC training, and access to buildings
- Make sure that all resources and materials etc...are ready and available for their experiments



### 3. Maintaining Effective Communication

- Active listening
- Providing constructive feedback
- Developing a trusting relationship
- Accommodating communication style



#### Suggested discussion:

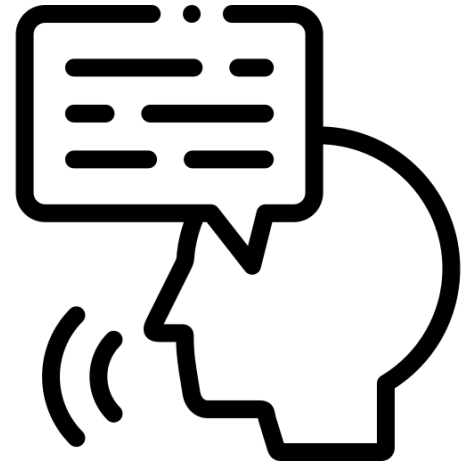
- Be a good listener. Ask how they are doing and if they need anything.
- Explain the communication structure between undergrad, grad student, postdocs and PI
- Discuss what is the preferred mode and frequency of communication
- Discuss the expected schedule
- Discuss how the results be documented
- Provide timely feedback on funding proposals, end of semester papers, honor theses, powerpoints etc... and explain your expectation of lead time to receive these items

## 4. Assessing Understanding

- Setting research goals
- Developing strategies to meet goals
- Assessing mentee knowledge and comprehension

### Suggested approach

- Discuss with PI who will decide project and how much responsibility you have in mentoring
- Ensure undergraduate can
  1. explain rationale (big picture)
  2. state background for project (previous studies)
  3. state hypothesis
  4. explain why chose this technique and how it works
  5. explain steps in protocol
  6. explain how data is analyzed
  7. explain interpretation of data analysis
- Implementation: weekly meetings where one of the above aspects is reported out in in-person meetings or else videotaped and shared
- If problems persist what could be underlying the issue and how would you handle?



## 5. Mentee Self-Efficacy

- Motivating mentees
- Building confidence

Suggested approaches:

- Be aware of imposter syndrome
- The goal is to give them confidence that they can do some or all of the work by themselves
- Help them see the joys of research but understand that not everybody wants to get a PhD. How to motivate pre-meds is that cure could help hundreds of patients
- Teach them to accept that failure is OK and that we learn from these mistakes. If you screw up, speak up
- Don't put undue pressure to get positive results and enforce that negative results are still valuable



## 6. Addressing Diversity

- Considering differences may impact expectations
- Accounting for biases and prejudices
- Accounting for different backgrounds of mentors and mentees



### Suggested approach:

- Be aware of unconscious bias - Refers to a bias that we are *unaware of*, and which happens outside of our control. It is a bias that happens automatically and is triggered by our brain making quick judgments and assessments of people and situations, influenced by our background, cultural environment and personal experiences
- Be culturally sensitive (e.g. race, ethnicity, gender identity, sexual orientation)
- Be aware of microaggressions
- Be aware of first generation and college readiness
- Be aware of ageism
- Be aware of people who are differently able (e.g. physical, neurodivergent, color blind)
- Send to CAPS if anxiety is high



## Witches of Glum activity



## What to Do If a Student Shows Signs of Depression or Anxiety

There are professionals who can help our students in the case of more serious concerns.

Be direct with your concerns. Tell them what you are seeing that has you worried.

Helpful responses:

- Listening
- Conveying an understanding
- Expressing that you care
- Normalizing what they are feeling
- Validate the student's experiences and talk to them about helpful resources such as Counseling, Alcohol and Other Drug Assistance Program & Psychiatric Services (CAPS) <http://health.rutgers.edu/medical-counseling-services/counseling/>  
"Share-A-Concern" <http://health.rutgers.edu/do-something-to-help/>  
"Everyone needs help sometimes."  
"It sounds like you are dealing with a lot, it might be helpful to have someone to talk with."  
Suicide and Crisis Lifeline 988

Unhelpful responses:

- Judging
- Minimizing
- Implying what they are feeling is their fault



## 7. Fostering Independence

- Simulating creativity
- Acknowledging mentees' professional contributions
- Negotiating path to independence

### Suggested approaches

- Discuss what level of independence is expected
- Encourage them to formulate questions and try to answer them themselves before asking you
- Teach excellent note taking and lab book maintenance
- Agree on how much practice they will need
- Have them watch you several times, then you watch them, and finally they do on their own while you are available for questions
- Have them teach someone else
- Analyze outcomes and have them do it in parallel to see if get same outcomes
- Create a reasonable timeline – make daily task list until they can do it for themselves
- Encourage creating check lists for protocols and locations
- Require “what did you learn this week and how” reports
- Some situations involving undergraduates require mentoring up from grad student to PI



## 8. Navigating Mentoring Networks

- Coordinating with other mentors

Suggested approach:

- Encourage trainee to find other mentors
- Be aware of other mentors that the trainee may have
- Discuss with those mentors if they have differences in approaches
- No single approach is correct and trainees may benefit from various perspectives





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## Case Study #1: “Ready Mentee”

Case study adapted from:

*Entering Mentoring*, revised edition, by Christine Pfund, Janet Branchaw, Jo Handelsman

## Case Study #1: Ready Mentee

An experienced undergraduate researcher was constantly seeking input from his mentor on minor details. Though he had regular meetings scheduled with his mentor, he would bombard her with several emails daily or seek her out anytime she was around, even if it meant interrupting her work or a meeting. It was often the case that he was revisiting topics that had already been discussed. This was becoming increasingly frustrating for the mentor, who knew the student was capable of more independent work. The mentor vented her frustration to at least one other group member and wondered what to do.

## Small Group Discussion of Case 1 in Breakout Room for 10 min – Please select notetaker and spokesperson

- What should the mentor do?
- What could the mentee do differently?
- What is one element of mentoring that is present or missing?
- What are the main themes raised in this case study and the take away? Be prepared to have a spokesperson report out.
- **NOTE WHICH BREAKOUT ROOM NUMBER YOU ARE GOING INTO AND USE CORRECT GOOGLE SLIDE**

## Large Group Discussion of Case 1

- Google slides





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Case Study #2:  
“The Sulky Undergraduate”

Case study adapted from:

*Entering Mentoring*, revised edition, by Christine Pfund, Janet  
Branchaw, Jo Handelsman

## Case Study 2: The Sulky Undergraduate

A graduate student was assigned to mentor an undergraduate student, Deja, who came from a local small undergraduate college for the summer.

Because the professor and the graduate student did not think Deja had sufficient background for a more complicated project, a more basic project was chosen.

The graduate student explained the project to Deja and taught her some basic techniques and approaches needed for the project.

## The Sulky Undergraduate (continued)

Deja was very quiet for the first 10 days of the project, and then she went to the professor and complained about the project. Deja said she wanted a project "like Michael's."

Michael was a student with a strong disciplinary background, and his project was much more advanced. The professor insisted that Deja keep the project that was designed for her, but she became sulky.

As the summer went on she didn't get much of her work done, and the graduate student mentor began to wonder if Deja understood what she was doing or even cared.

## Small Group Case Study 2 Discussion in Breakout room for 10 min - Please select notetaker and spokesperson

- What kind of conversations regarding expectations might have been helpful early in this relationship?
- What kind of conversation would be helpful once the student asked for a different project? Who should be involved in this conversation?
- Try a role play between the grad student and the undergrad in your small groups.
- What are the main themes raised in this case study and the take away? Be prepared to have a spokesperson report out.

## Large Group Discussion of Case 2

- Google slide

## What do you plan to do? Self reflection

- Write down a few approaches you will now use when mentoring undergraduates that you have not used before.



## Optional follow up activities to earn Microbadge in Mentoring Undergraduates

You will be invited to Canvas site

1. Write a reflection on your mentoring style
2. Take the implicit bias test <https://implicit.harvard.edu/implicit/takeatest.html>
3. Modify and personalize undergraduate contract
4. Plan your first meeting with a new undergraduate considering how you may adapt your style if they come from a different background than you
5. Evaluate a third case study provided to you (The Sloppy Undergraduate)
6. Compose an original case study using a situation that you have encountered with an undergraduate
7. Write a reflection of your mentoring experience. How has your approach to mentoring changed?

Steps 1-4 should be completed prior to your mentee starting in the lab  
Steps 5-7 should be completed by August 31



# What principles are important in mentoring relationships?

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## 8. Navigating Mentoring Networks

- Coordinating with other mentors



## Material for this workshop

- Pfund, et al. *Entering Mentoring*, revised edition.
- NRMN-CAN workshops
- Lee, Steve "Mentoring Up: Pro-actively managing your mentoring relationship by assessing and applying your strengths". Graduate Diversity Office, UC Davis, University of California. PDF Presentation ABRCMS, November 12-15, 2014.
- Hyun, S.H. et al. Re-validation of the mentoring competency assessment to evaluate skills of research mentors: the MCA-2, *Journal of Clinical and Translational Science*. 10.1017/cts.2022.381 (2022)

# Q & A

