Example Workshop Design
IS471 Final Assignment

Workshop: Finding Undergraduate Research Opportunities
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Finding Undergraduate Research Opportunities in STEM

Section I: Introduction

Finding undergraduate research opportunities is not as straightforward as one would hope, and not knowing how to approach it prevents students from pursuing opportunities that are often required for post-graduate options including graduate school. Many students, especially first-generation students, find themselves lost in the process, unsure if it is even for them. This one-hour workshop focuses on helping students understand what undergrad research entails and why they might want to (or not want to) do it. We will focus on choosing topics, understanding research summaries, and how to reach out to professors about their research.

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Section II: Learning Outcomes

- Students will be able to identify what undergraduate research involves and how it can be helpful for them in order to decide whether it is something that they want to pursue.
- Students will be able to narrow down research topics so that they have a manageable list of opportunities to start with.
- Students will be able to read through and appraise professors' research summaries and identify points of interest in order to decide which labs best suit them.
- Students will be able to draft an e-mail to a potential advisor in order to reach out to research faculty for research opportunities.

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Section III: Assessment

Outcome: Students will be able to draft an e-mail to a potential advisor in order to have an idea of how to reach out to research faculty for opportunities.

Assessment plan:

- Students will pick one of the professors whose research statements stuck out to them and will draft an e-mail to said professor about research opportunities in their lab.

Students will follow the provided handout for a checklist of things to cover in a good quality e-mail. Since e-mails tend to vary in order to be personable, there will not be a rubric, but any e-mail containing all the items on the checklist will be considered a good e-mail and the student will be said to have a grasp of the material.

Students are not required to send this e-mail but should gain confidence in what correspondence should look like.

- Students will send e-mail to instructor and receive feedback according to the checklist provided in the attached handout.
    - Feedback will be provided to all students after the workshop based on their draft e-mails.
    - Students will be able to use feedback to assess what they learned and what they need to improve in order to find research opportunities

Alternative assessment:

- If students complete all workshop activities and do not think that undergraduate research is for them, they may complete a skeleton of an e-mail for practice in case they have to e-mail professors about other opportunities.
- Instead of discussing a professor's research, pick a professor you found in your search and pose a question you have about their job (ex. Why they chose their field, what they like about teaching, etc.).
- Students will send e-mail to instructor and receive feedback according to the checklist provided for research opportunity e-mails but will take into account the differences in the assignment.
    - Students will be able to use feedback to assess what they have learning and have the skills to contact professors about questions they have about coursework, non-research opportunities, etc.

Section IV: Session Outline

Location

Library computer labs

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- Students will have the option to use library computers or follow along on their own personal device.

Pre-Class Prep:

- Handouts and rubrics will be available online or will be e-mailed to participants so that they may look over materials before the workshop if they like.
- Disability/accommodation form will be available online or e-mailed to participants to make sure I can accommodate all participants.
- Welcome e-mail will be sent to participants with above materials (or links to above materials) and a little blurb to get them excited and feel welcome at the workshop, and also to provide them with an e-mail from the instructor so that end of workshop assessment e-mail can be sent as a response to this welcome e-mail.
- Welcome e-mail will include brief overview of mentimeter – which will be used during the workshop. Mentimeter is not required but is an option for students who don't like to talk out loud in front of people but want to participate. Participants can use mentimeter on a personal device, or on the lab computer they will be using for activities.
- Lab computers will be logged in and have tabs open for mentimeter & university website.

Workshop:

- **(2 minutes) Introduction**
  - Welcome students, introduce myself & background/experience with topic
  - Ire-introduce mentimeter so that they can set up a session if possible
  - Emphasize contact information and that they can contact me at any time
  - Question for students – is anyone familiar with any ongoing research on campus?
    - Mentimeter session will be set up: students can enter their answers so they show up on the screen.
  - Highlight famous examples (right now COVID test development would be good one)
- **(10 minutes) Teach Content**
  Start PowerPoint: what is undergraduate research?
  (students can follow along on handout)
  - Why is undergraduate research useful?
    - Different way of learning material
    - Requirement for most PhD, some masters programs
    - Leg up for industry positions
    - Trying out to see if you even like research
  - Is undergraduate research for you?
    - *Emphasize* -Not for everyone, and you don't have to do it!
    - Not all jobs in STEM require it

        - Helps for med/health school applications but not technically required
        - Would it help more than hurt?
            - Not usually paid, big time commitment
    - General overview of how to get an opportunities
        - Option 1 (common): cold-e-mail professors, see if they have opportunities available
        - Option 2 (not super common): See if department offers structured research program, apply to that (workshop will focus on option 1 but I can discuss option 2 if time or after the session)
            - Some programs to check discuss in handout
- **(5 minutes) Identify campus research opportunities**
    - Walk through one example on PowerPoint, students can follow along or choose their own department to go through.
    - Pick one department – ask students for ideas (in person or mentimeter)
    - Look through list of professors
- **(15 minutes) Make a list of professors you are interested in**
    - 2-3 bullet points of interesting points
    - Instructor will walk around & answer question/help guide students
    - Can work with person next to them
- **(2 minutes) Discussion**
    - Discuss how you narrowed your list/decided on a professor to e-mail with your partner.
    - Submit your reason mentimeter so that everyone can get ideas about what stuck out to different people, and instructor can evaluate if students grasped the concept well. (This can be done early if students finish making their list early)
- **(20 minutes) - Assessment**
  Use handout to design an e-mail draft to a potential advisor
    - Students may work with person next to them
    - Instructor will walk around to help/aid with questions
    - Students will e-mail instructor their draft e-mails at the end of the workshop
- **Remaining time: Wrap Up**
    - Make sure students e-mail draft to instructor
    - Conclusion: what we covered & reminder to stay after or contact instructor with additional questions
    - Last minute questions

Post-session:

- E-mail feedback response to e-mail drafts

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Section V: Discussion

Information Literacy

This workshop will allow participants to gain an understanding of what undergraduate research is, whether it is a useful undergraduate research for them, and will be walked through an example of how to find opportunities. Students will be guided through the process of learning about and finding undergraduate research experiences that will teach them how to think through the process and apply it in future scenarios. Students will begin by curating and thinking about information – by learning about opportunities and how to find them, they will determine the need to gather information. Looking at faculty research statements, they will identify many possible sources of information. In order to narrow their list of sources down, they will need to critically think about which research statements interest them in order to make decisions about which information sources to use. Specifically looking at the ACRL framework, students will learn about scholarship as conversation and research as inquiry. Students are being guided through a process that sounds incredibly intimidating – cold e-mailing professors. Up to this point in their academic careers, they have likely only interacted with professors in classes where they have information and are conveying it to students. Undergraduate research, in contrast involves students dipping their toes into the idea of being involved in this "scholastic conversation". By learning how to discuss their own interests in the context of professor's research while researching and writing their e-mails, students will get a chance to practice being a part of the conversation. In writing their e-mails, they will share their own opinions regarding faculty research with the intent to learn and curate them further. Furthermore, students will be guided through the framework: searching as strategic exploration. A lot of this workshop will be a hands-on attempt at guiding students through the process of 1) identifying research at the university (by having them look up different areas of research), 2) refining information (by refining the lists they make based on their own interests), which of course involves students to define their own standard and interests for this assignment. In their searches, they will realize that different research statements have varying levels of information, and that they may need to get help from the librarian instructor in order to clarify things. Above all, they will learn to know when they have gathered enough information to finish the task in the time provided. Students will be reminded of time remaining in order to keep them on track and help them learn this objective.

Inclusive Teaching

This workshop is designed around inclusive teaching. Students from all backgrounds should feel welcome in this workshop! This is implemented into the course outline through the welcome & intro with an emphasis on this being a learning experience regardless of whether participants decide that undergraduate research is for them. Built

into this workshop is an assessment that will challenge students to use the knowledge they learned in this workshop to draft an e-mail to a professor about undergraduate research, and an alternative assignment that is less focused on research but still encourages students to get practice joining scholastic conversation by coming up with a question to ask a professor. Students will have many opportunities to ask questions and clarifications, and the overall presentation and material will be accessible by default with additional accessibility options available by request. Handouts will be provided to help students follow along or revisit material later, as well as to have a guideline of everything a good letter should include. Pedagogy is demonstrated through the variety of activities with clear expectations, but with choices provided to make the activities comfortable for everyone. Topics not covered in this workshop involve funding undergraduate research opportunities BUT we will point out that funding is possible, give handout including funding opportunities, & provide e-mail for additional questions/offer opportunity to stay after workshop to discuss some of these things.

Active Learning

Active learning is also a huge proponent of this workshop. While there will be some lecturing, students will be asked to participate throughout the lecture through mentimeter polls, contributing ideas for what the instructor will demo, or asking questions. Students will get a chance to practice concepts they learn during the lecture portion and will get to choose whether they work together or independently. We will walk through answers as a class, giving students an additional opportunity to participate. The final assessment is an active compilation of concepts covered in class, ending with them sending an e-mail to the instructor just as they would to a potential professor mentor. These exercises will help students learn how to work together, think critically, and feel confident about the material all while being engaged with the material.

Section VI: Handout

[See attached handout]

-handout included separately to maintain formatting