DISCOVER STEM IN ACES PROGRAM - SUMMER 2022

CROP SCIENCES MENTORSHIP AGENDA

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| **Day** | **Morning Session**  **(9:00 am – 12:00 pm)** | **Afternoon Session**  **(1:00 pm – 4:00 pm)** | **Comments** |
| Monday, July 18th | **Introductions (9:00 am – 10:30 am)**  **(Turner Hall Room S115)**   * Mentor will introduce himself and provide his background * Each student will introduce themselves and mention their expectations from the program * Mentor will give a brief PowerPoint presentation about his research in maize breeding for organic systems and a brief summary of research projects in the Bohn Lab   **Field session (10:30 am – 12:00 pm)**  **(Agronomy seed house)**   * Mentor will take students to one of the nurseries (conventional nursery) and conduct a workshop about maize pollination and how to carryout maize crossing. All necessary equipment will be provided in the field. | **Field tours (1:00 pm – 2:30 pm)**  **(The Seed house, 2102 S Wright St, Urbana, IL**  **and Maxwell Farm on Church St. and First St.)**   * Mentor will take students to all the Bohn Lab summer 2022 field experiments and nurseries (2 organic experiments, 1 organic nursery, 2 conventional   experiments and 1 conventional nursery).   * Mentor will provide a brief description of the research objectives for each experiment.   **Undergrad Panel (2:30 – 3:30 pm)**  **(Turner Hall Room S115)**   * Mentor will invite one or two undergrad student employees to share their experience regarding adjusting to college life. This will be a casual conversation where students will feel comfortable to ask any questions about college life.   **Check-in session (3:30 pm - 4:00 pm)**   * Brainstorm about the presentation * How can the mentor be helpful? | * Mentor Can use the Lab truck to transport students during field visits. However, if there are more than 7 students, additional transportation should be organized. * The undergrad discussion will be informal and casual. Mentor will brainstorm about specific topics to cover; however, suggestions are welcome. Session will be held in Conference Room, Turner Hall S115. * Mentor will reserve 30 minutes every day to check-in and recap all the activities of the day and answer any pending questions students might have. |
| Tuesday, July 19th | **Field session (9:00 am – 12:00 pm)**  **(Agronomy seed house)**   * Students will spend the morning in the conventional nursery practicing everything they learnt about pollinations. * Students will be assigned a section in the nursery for them to conduct pollinations in this block. Mentor will be available to monitor and answer any questions. | **Doubled Haploid Session**  **(Turner Hall, Room C114)**   * Introduction to doubled haploids   (Mentor Presentation, 1:00 pm – 1:30 pm)   * Haploid selection workshop (1:30 – 3:30 pm). Students will be trained on how to identify haploid corn kernels from diploids.   **Check-in session (3:30 pm - 4:00 pm)**   * Discuss presentation topics, etc. | * Materials needed for the doubled haploid session will be provided by mentor. * The session will be conducted in the Maize Research Room, Turner Hall C114. |
| Wednesday, July 20th | **Field session (9:00 am – 11:00 am)**  **(Seed house/ maxwell farm for organic)**   * Students will continue making pollinations in the conventional nursery. * Students might be taken to the organic nursery if materials in the nursery reached flowering time. * Mentor will explain the germplasm in this nursery and allow students to conduct pollinations. | **Ice Cream Experiment (11:00am- 12:00pm)**   * Students will be dropped off to Schroeder Lab for the ice cream experiment   **Data Collection and Trait Evaluation (1-4pm)**  **(Maxwell farm on organic field)**   * Introduction: What it is and why we do it) * Data collection workshop. Student will be trained to collect phenotypic data in the organic experiment. * Trait evaluation: 3 traits will be studied during this session (Plant height, ear height and stem diameter) * Students will collect data to evaluate hybrid performance under 2 crop rotation systems and 3 nitrogen treatments.   **Check-in session (3:30 pm - 4:00 pm)**   * Answer any pending questions * Feedback from students | * The afternoon session will be conducted in groups (2 groups). Each group will be assigned a rotation system and will collect data from 2 Reps. * Data collected will be used during the next session on Thursday July 21st. |
| Thursday, July 21st | **Field session (9:00 am – 12:00 pm)**  **(Seed house and maxwell farm)**   * Students will continue making pollinations in the conventional nursery. * If possible, students will be transported to the organic field for a workshop about “Weed Management in Organic Systems”. This might involve students manually weeding using hoes. | **Data management and analysis**  **(Turner Hall Room S115)**   * Introduction to hypothesis testing: Mentor will provide a brief introduction to hypothesis testing and how we can apply to the data collected in the previous session. * Data analysis and interpretation: Mentor will demonstrate how to conduct a simple analysis using the data collected from the previous session. R Software will be introduced and used in this session.   **Check-in session (3:30 pm - 4:00 pm)**   * Answer pending questions from the session * Discuss how to incorporate today’s results in the presentation (Graphical representation of obtained data). | * The afternoon session will be conducted in groups (2 groups). Each group will enter their collected data into excel. Analysis will be done together with the mentor. * Ideally, students should conduct the analysis using the mentor’s instructions. However, if students don’t have laptops, analysis will be done using mentor’s computer and projected on the screen. This session will be conducted in Conference Room, Turner Hall Room S115 with the projector. |
| Friday, July 22nd | **Field session (9:00 am – 12:00 pm)**  **(The seed house, south farm)**   * Students will continue making pollinations in either the conventional nursery or the organic nursery. * Students will be trained on how to take flowering notes in hybrid experiments (tablets will be provided during this session). | **Drafting Presentation (1:00 pm – 3:20 pm)**  **(Turner Hall, Room S115)**   * Mentor will be available to attend to any questions and assist students with presentations.   **Feedback session and conclusions**   * Students will give feedback about the program (what they learnt, strengths and weaknesses, how to improve etc.). * Students will present a draft of their PPTs * Closing remarks. | * If possible, students will present their results from the previous data analysis session. * Potential snacks during this session? |