DISCOVER STEM IN ACES PROGRAM - SUMMER 2023

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 17th** | **Introductions (9:00 am – 10:30 am)**  **Loc: 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)**  **Loc: Agronomy seed house**   * Mentor will take students to one of the nurseries (conventional nursery) and conduct a workshop about maize pollination and how to conduct maize crossing. All necessary equipment will be provided in the field. | **Field tours (1:00 pm – 2:30 pm)**  **Loc: Seed house and Organic Farm**   * Mentor will take students to all the Bohn Lab summer 2023 fields (2 nurseries and 2   Experiments )   * Mentor will provide a brief description of the research objectives for each experiment.   **Undergrad Panel (2:30 – 3:30 pm)**  **Loc: Turner Hall Room S115**   * Mentor will invite 3 undergrad student (one from U of I and 2 interns from Puerto Rico) 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 will use the Lab truck to transport students during field visits. No space for resident advisor in the truck. * During the field session, students are required to wear long pants, closed shoes, a hat and sunscreen. * The undergrad discussion will be informal and casual with undergrad student employees in the Bohn-lab. * 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 18th** | **Field session (9:00 am – 12:00 pm)**  **Loc: 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**  **Loc: 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. | * During the field session, students are required to wear long pants, closed shoes, a hat and sunscreen. * 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 19th** | **Field session (9:00 am – 12:00 am)**  **Loc: Seed house and organic farm**   * Students will continue making pollinations in the conventional nursery. * Students will also identify haploids and explain the differences between haploids and diploids (based on previous session) * If the organic nursery is flowering, mentor will explain the germplasm in this nursery and allow students to conduct pollinations. * Mentor will demonstrate selection and explain selection criteria used. | **Data Collection and Trait Evaluation**  **Loc: Agronomy Seed house**   * 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 in the Genome to Field Experiment. | * The afternoon session will be conducted in groups (2 groups). * Each group will be assigned a specific hybrid experimental plot to evaluate and collect data. * Data collected will be used during the next session on Thursday July 20th * Students are required to wear long pants, closed shoes, a hat and sunscreen both morning and afternoon |
| **Thursday, July 20th** | **Field session (9:00 am – 10:30 pm)**  **Loc: 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.   **NIR Spectrometer (10:30am – 12:00 pm)**  **Loc: Edward R. Madigan Lab, Room 319**   * Students will learn about the Near infrared spectrometer and how it is used to evaluate kernel chemical composition * Students will evaluate protein, starch, and oil content of a set of hybrids and use data in the afternoon session. | **Data Analysis (1:00 pm – 3:30 pm)**  **Loc: 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 21st** | **Field session (9:00 am – 12:00 pm)**  **Loc: The Agronomy seed house**   * 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)**  **Loc: 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? |

**NOTE:**

**The DSAP students will always be at one of four locations: Turner Hall, Seed House, or Organic Farms, as noted throughout the schedule. For quick reference, the location and addresses of each site are as follows:**

1. **Agronomy Seed House:** 2102 S Wright St Urbana, IL 61801
2. **Organic Farms:** Near the Crop Sciences Research and Education Center located at 4202 S. First Street, Champaign, IL 61822 (Organic Farm located at the corner of First Street and Church Street).
3. **Turner Hall:** 1102. S. Goodwin Urbana, IL Urbana 61801
4. **Edward Madigan Lab:** 1207 W Gregory Dr. Urbana, Illinois