IMPACT
Innovative Minds Partnering to Advance Curative Therapies

STUDENT HANDBOOK
2018
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MISSION STATEMENT

The mission of Mayo Clinic is to inspire hope and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education, and research. The mission of the IMPACT program is to encourage creative solutions to critical health questions through collaboration between undergraduate students and Mayo Clinic. Through this program, we aim to engage undergraduates in novel hypothesis generation to solve real-world questions alongside Mayo scientists and physicians. By involving students from traditional science majors as well as non-science backgrounds, this program will forge multidisciplinary partnerships toward the common goal of meeting patient needs.
IMPACT 2018 CHALLENGE QUESTION

1. What is the underlying cause of Hypoplastic Left Heart Syndrome (HLHS)?

HLHS is a rare and complex congenital heart defect in which the left side of the heart is severely underdeveloped. Scientists today do not fully understand what causes HLHS and treatment for this condition remains palliative — there is no cure. This IMPACT question challenges students to investigate the potential biological pathways (metabolic, cellular, molecular, etc.) that might underlie cause of this heart defect and serve as innovative targets for preventative and curative therapies for HLHS patients.

NOTE: The term ‘biological pathway’ is intentionally vague to encourage teams to think about these IMPACT questions from many different perspectives. For instance, biological pathways could be influenced by genetic alternations, epigenetic changes, environmental factors, etc. IMPACT teams will be judged based on the innovation of their hypothesis.
ELIGIBILITY REQUIREMENTS

1. Students must be enrolled in an undergraduate curriculum at the time of IMPACT registration.

2. Submissions will only be accepted from teams of 2-4 undergraduate students.

3. Students from all years of undergraduate education are eligible to apply.

4. Students from all academic majors are eligible to apply.

5. Any number of teams may apply from a single undergraduate institution.

6. Each team must complete one electronic registration form to indicate their intent of participation by November 24, 2017. Form can be found at https://goo.gl/forms/EsLtX6qr50djlf5p2.

7. At the time of registration, each team must identify a faculty sponsor at the undergraduate institution.

8. For full consideration, at least one student representative must attend the IMPACT Symposium at Mayo Clinic on March 10, 2018. All team members and faculty sponsors are strongly encouraged to attend this event.
ROLES AND RESPONSIBILITIES

IMPACT Team

Teams of 2-4 undergraduate students will be required to develop innovative hypotheses that address the following IMPACT question:

What is the underlying cause of Hypoplastic Left Heart Syndrome (HLHS)?

Within the team, participants are encouraged to review primary literature to develop a well-supported and novel hypothesis. While collaborative investigation is allowed between IMPACT teams, each submission must be unique. Novelty will be a primary evaluation criterion in the selection of the winning IMPACT submissions. In addition, students are encouraged to work with their team’s faculty sponsor to the extent that they require guidance accessing and interpreting primary literature.

Faculty Sponsor

Each IMPACT team must identify a faculty sponsor. This faculty sponsor will serve as a mentor and reviewer for the team’s submission. Responsibilities include:

- Providing guidance to the IMPACT team to the extent that they require scientific direction or structured scheduling of a research timeline.
- Review the IMPACT team’s written and poster submissions to ensure high-quality scientific work.
IMPORTANT DATES & DEADLINES
*all deadlines are 11:59 PM CST*

- Registration for Topic  
  Friday, Nov 24, 2017

- Written Submission Due  
  Monday, Feb 5, 2018

- Notification of Oral Presentations  
  Monday, Feb 19, 2018

- Poster Submission Due (for print)  
  Monday, Feb 26, 2018

- IMPACT Symposium  
  Saturday, Mar 10, 2018

- Notification of IMPACT Winners  
  Friday, March 23, 2018

- *Italicized dates indicate when IMPACT leadership will make various announcements.*
SUBMISSION REQUIREMENTS

Written Submission Content

Each submission must include one clearly defined, novel hypothesis that addresses the following question:

What is the underlying cause of Hypoplastic Plastic Left Heart Syndrome (HLHS)?

To be considered a complete submission, the following sections must be included:
A. Cover Page (template found at www.mayo.edu/research/crm/impact)
B. Background Information
C. Hypothesis and Rationale
D. Significance and Innovation
E. References

Written Submission Format

Length: Submissions must be no longer than 3 single-spaced pages; including Background Information, Hypothesis and Rationale, and Significance and Innovation. References must be included but do NOT count toward the page limit (Any citation style is acceptable, but should be consistent across the document).

Font: Submissions should be written in Times New Roman, 12-point font.

Margins: One inch margins should be used across the entire document.

Subheadings: Submissions must identify the content sections via subheadings with the same section names as above.

Figures: Figures can be included but must be referenced if they come from published work. Diagrams and models to illustrate the hypothesis are also encouraged. All figures will count toward the 3-page limit.

File Format: Final submissions must be sent as pdf documents to IMPACT@mayo.edu by 11:59 PM CST on Monday, February 5, 2018.
POSTER FORMAT

Each IMPACT team will be invited to submit a poster for presentation at the IMPACT Symposium on Saturday, March 10, 2018. The poster template can be found at www.mayo.edu/research/crm/impact. This template should be used when preparing the poster presentation to ensure that the final printed size of each poster is uniform (3x5 feet). Poster sections and font sizes in the template are recommended; however, the relative size of each section will be determined by each team’s unique submission. Please note that students are encouraged to take artistic liberties with the color and layout of the poster to best illustrate their IMPACT submissions.

IMPACT posters must be emailed to IMPACT@mayo.edu by 11:59 PM CST on Monday, February 26, 2018 in order to be printed for the IMPACT Symposium. All posters will be printed free of charge at Mayo Clinic prior to students’ arrival at the Symposium.

IMPORTANT: Each poster will be judged by a panel of research and clinical experts at the IMPACT Symposium. There will be a Best Poster Plaque given to one team. All teams are eligible for consideration for this award, regardless of selection for an oral presentation.
**SELECTION CRITERIA**

Submissions that fail to adhere to the formatting guidelines above or that are received past the Monday, Feb. 5, 2018 deadline will not be considered. Submissions will be evaluated by Mayo Clinic researchers and clinicians according to the following rubric.

**Evaluation Rubric**

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alignment with Research Mission</td>
<td>Does the proposal directly answer the assigned IMPACT question?</td>
</tr>
<tr>
<td>2. Hypothesis and Rationale</td>
<td>Is the hypothesis well-defined and testable?</td>
</tr>
<tr>
<td></td>
<td>Is the hypothesis novel?</td>
</tr>
<tr>
<td></td>
<td>Is the hypothesis supported by clear rationale?</td>
</tr>
<tr>
<td></td>
<td>Do the authors cite recent and relevant literature sources?</td>
</tr>
<tr>
<td>3. Significance and Innovation</td>
<td>Do the authors clearly describe the significance of their hypothesis?</td>
</tr>
<tr>
<td></td>
<td>Does the hypothesis innovatively build upon published literature?</td>
</tr>
<tr>
<td></td>
<td>Could the hypothesis transform research or clinical practice?</td>
</tr>
<tr>
<td>4. Presentation Quality</td>
<td>Was the oral presentation clear and engaging?</td>
</tr>
<tr>
<td></td>
<td>Were the presenters able to respond well to questions from the audience?</td>
</tr>
</tbody>
</table>

Initial evaluation will be based on the first 3 categories of the rubric and will identify the top 6 to 10 teams. These teams will be invited to give oral presentations at the IMPACT Symposium and will move forward in consideration for the Gold, Silver, and Bronze IMPACT Awards.

Following the IMPACT Symposium, a panel of IMPACT leadership and senior investigators within the relevant research area will evaluate the top submissions according to the complete rubric above.
SYMPOSIUM INFORMATION

The 2018 IMPACT Symposium will take place at Mayo Clinic, Rochester on Saturday, **March 10, 2018**. All participating students and faculty sponsors will be invited to attend this event. The symposium will include poster sessions, oral presentations, and keynote addresses. Details regarding the symposium schedule will be emailed to participants in February 2018.

**Dress Code**

Dress code for the symposium is business casual. Please dress appropriately as a picture of all of the 2018 IMPACT participants will be taken during the event.

**Parking**

Free parking is available in downtown Rochester on weekends.
AWARD INFORMATION

The gold medal IMPACT Award will include the following:

- A $1000 cash prize for each student on the team with the most outstanding hypothesis.
- An award plaque to be displayed at the students’ home institution.

NOTE: Silver, bronze, and best poster IMPACT awards will also be recognized with a plaque to be displayed at the students’ home institution.
CONTACT INFORMATION AND SOCIAL MEDIA
http://www.mayo.edu/research/crm/impact

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IMPACT on Social Media

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Instagram impact.mayoclinic
Twitter @mayo_impact