UNDERGRADUATE RESEARCH PROGRAM
ACADEMIC YEAR 2024-25 PROPOSAL GUIDELINES

The **Undergraduate Research Program (URP)** was established to give motivated undergraduates a chance to participate in research and scholarly activity at Montana Tech to further their career and educational goals.

For purposes of the Undergraduate Research Program research and scholarly activity is broadly defined and may include:
- Investigations of a cultural or historical question
- Documentary or production arts
- Laboratory or field research more typically associated with the science or engineering disciplines

For the Public Health Internship (PHI), activities may include:
- Identifying population-level health issues (i.e., health issues potentially affecting communities or larger groups of people).
- Assessing health (i.e., identifying and/or evaluating risks or variables that may be associated with increases or decreases in morbidity and mortality).
- Preventing or mitigating risks to health (i.e., working with either a formal or informal public health agency to develop plans or implement program-based interventions designed to improve health status at the community level).
- Public health systems improvement activities (i.e., building overall organizational capacity in the formal or informal public health systems by improving a public health organization's ability to perform and/or carry out its mission).

Neither program would allow students to receive funding from the URP Program and any outside resource (such as a paid internship) simultaneously. Also, the scope of research/clinical work must be clearly different than any project or requirement to graduate from your selected program. For example, students cannot use senior engineering projects to request URP funding unless they can prove to the committee that the URP research goes above and beyond what is required for the senior project. Students may not request PHI funding to cover work that is part of the required clinical hours.

The Undergraduate Research Program is *not* a venue for funding senior design projects or service learning projects, unless a strong case can be made for the additional research component involved in these projects.

I. WHY BECOME INVOLVED WITH THIS PROGRAM?

Research projects can bring reality and excitement to the learning process. The following benefits are associated with completing an undergraduate research project:

- Hands-on research experience.

- Valuable skills that will impress readers of employment resumes and graduate school applications, aid in developing a project for additional academic credit, and perhaps result in a published paper.

- The program provides a $1,500 scholarship for North campus students taking a registered full time load of at least 12 credits, plus 1 research credit, paid in two installments during the

academic year ($750 for the Fall Semester and $750 for the Spring Semester). In the case of December graduates, students will be paid a single scholarship of $750.

- For Highlands Students, two scholarship options are available. The program provides a $1,500 scholarship for Highlands students registered full-time for at least 12 credits, plus 1 research credit, paid in two installments during the academic year ($750 for the Fall Semester and $750 for the Spring Semester). The program provides a $1,000 scholarship for Highlands students taking 9 credits of coursework, plus 1 research credit, paid in two installments during the academic year ($500 during Fall Semester and $500 during Spring Semester).

- You may be able to present your research at various conferences including the Montana Academy of Sciences Annual Meeting, the National Undergraduate Research Conference, and Sigma Xi Annual Conference. See the Undergraduate Research website for more presentation opportunities. A presentation will be required.

II. PROPOSAL SUBMITTAL AND DUE DATE

The proposal document, including cover sheet(s), must be submitted in PDF format. Hard copies of proposals will NOT be accepted.

The proposal and cover sheet PDF must be emailed to **urp@mtech.edu** by:

5 p.m. on Friday, April 5, 2024.

Subject line of the e-mail should say, "URP Proposal – Lastname, Firstname" or "PHI Proposal – Lastname, Firstname". File should be named, "lastname_URP_proposal_AY24_25" or "lastname_PHI_proposal_AY24_25"

There is no guarantee that there will be a Fall call for proposals for the 2024-25 Academic Year. If you would like to be involved in this program during AY 2024-25, you must submit your proposal by the above date.

III. STUDENT ELIGIBILITY

All undergraduate students are eligible, subject to the following conditions:

- All applicants must be students enrolled at Montana Tech in good academic standing and must have successfully completed 30 credits (North Campus) or 15 credits (Highlands) before starting the project. Exceptions may be made upon formal request to the URP Committee by the student's mentor.

- Applicants must attend classes full-time for the entire academic year they expect to receive their funding. The exception to this would be for Highlands Students who want to participate in research, but at the reduced scholarship rate. These students must be enrolled in at least 9 credits of coursework plus 1 research credit. This option is for Highlands Students **ONLY**. Spring applicant students graduating in December may participate, subject to the exceptions and guidelines set forth in Appendix D, December Graduate Requirements, on the Undergraduate Research website. Exceptions may be made upon formal request to the URP Committee by the student's mentor.

- North Campus Students must have completed at least 6 credits of course work in the academic area in which they are proposing to do research. Highlands students must have completed 3 credits in the area. These credits must be completed before the project is initiated.

- Team proposals may be submitted as long as both members of the team meet the eligibility requirements (teams are limited to 2 students). Team proposals, however, must have appropriate justification for each individual involved and therefore, must show how each member is going to contribute to the project. Each student will receive $1,000 scholarship ($500 each semester) for their participation. Teams should submit one proposal with two cover sheets. (For Highlandss students taking 9 credits of coursework, the scholarship would be $650 ($325 each semester)

- An appropriate research mentor (Tech faculty member, Tech researcher, or member of the Bureau of Mines and Geology) must sponsor each applicant or team. Interested students should contact prospective mentors in their department or in the area they are proposing to do research. For Mentor Guidelines, see Appendix I on the Undergraduate Research website.

- A student may submit only one proposal in response to this call. Successful recipients of URP awards may apply in future years as long as they continue to be eligible per URP guidelines.

- If applicable, include in the budget section, information on outside funding if the proposed URP project is similar to already funded research. Clearly explain how the proposed URP project is different than, or complements, currently funded work.

- A student who has failed to complete a previous undergraduate research project satisfactorily may be deemed ineligible for the program. A student who does not satisfactorily complete the first semester of the project or at least 9 course credits (Highlands) or 12 course credits (North Campus) may be deemed ineligible for participation during spring semester.

IV. THE PROPOSAL

Determination of award recipients will be based on the strength of the proposal submitted to the URP Committee. The URP committee reserves the right to return proposals for further editing or rewriting.

> *Because URP researchers are required to present their work in a public forum, proprietary topics and unprotected intellectual property create special challenges. Students who are considering a project with these issues are encouraged to contact the Research Office for advice, and may be directed to seek other methods of support.*

- Students should develop their proposals with the assistance of their research supervisor/mentor. The mentor will provide valuable assistance in developing the project. The proposal must include the Undergraduate Research Cover Sheet, a title page, project description (problem statement/background/justification, preliminary studies and/or literature review, project objectives/goals, methodology/procedures, evaluation, and timeline), references, and budget with budget justification. Review Appendix A, Proposal Preparation, on the Undergraduate Research website for more detailed descriptions of the required sections of the proposal.

- Proposals must be submitted in PDF Format, can be up to 1,200 words long (excluding cover sheet, title page, budget, budget justification and references), and may include illustrations. The text of the proposal must be formatted with a minimum of 11-point font and one-inch margins. See Appendix A, Proposal Preparation, on the Undergraduate Research website for detailed instructions. An example of a complete, well-written proposal is available on the website. Instructions for scanning or converting your proposal to a PDF are also available on the Undergraduate Research website. Hard copies will NOT be accepted.

- An operating budget request ($300 maximum) may be included in the proposal; students should work closely with their mentors to formulate the budget requests. Matching funds from the department are encouraged. See Appendix B, Budget and Expenses, on the Undergraduate Research website for more detailed budget development requirements and information.

  - ✔ The budget request is primarily for consumable supplies and expenses involved with constructing scientific apparatus. Items purchased with URP funds need to remain the property of Montana Tech. If a student wants to keep an item after the project is over (e.g. thumb drive, field book, digital camera, etc.), the student should reinvest a portion of the scholarship funds to purchase that item.

  - ✔ Funds to support travel associated with conducting the research are allowable budget expenses, but funds to support travel to present results should NOT be included in the proposal budget.

- Mentors may request a $300 mentor allowance for each URP project that they supervise. Mentor allowances can be deposited in their campus IDC account, or be re-directed towards the project to be spent on consumables, supplies, or travel associated with the project.

- If a project involves the use of human subjects or the use of personal data utilizing the private information of individuals, it will require the approval of the UM Institutional Review Board (IRB) which can delay the approval process by as much as 2 months. Please see Appendix H, Using Human Subjects, on the Undergraduate Research website for instructions on obtaining IRB approval.

- Proposals for projects involving collaboration with an off-campus individual, business, or other entity must include a letter of support or commitment from that entity.

V.   PROPOSAL EVALUATION

Proposals will be evaluated on appropriate criteria including the following:
- Is the proposal well-written and does it follow the guidelines?
- Does the proposal have a clearly stated objective, question or hypothesis?
- Is the proposed methodology described in adequate detail? Is it realistic? Given the time and budgetary restraints of typical undergraduate students, can it be completed? A timeline outlining the research activities must be included.
- Does the proposed methodology provide adequate information to address the objective, answer the question or confirm/deny the hypothesis? For example, if a proposal calls for some type of statistical analysis, adequate information would include the statistical hypotheses to be tested or the statistical model to be employed and the identification of the relevant statistical procedure. Some common examples are regression, 1-way ANOVA, and 2-sample t-test.
- The URP Committee and/or the Director of Environmental Health and Safety reserve(s) the right to reject any proposal due to safety concerns.
- The URP Committee may request a re-write of a proposal to address the URP Committee comments and concerns. A student <u>may</u> be allowed up to three submissions of a proposal.

Students can expect feedback from the URP Committee regarding their proposals by mid April 2024.

VI.   OBLIGATIONS & OPPORTUNITIES FOR ALL URP AWARD RECIPIENTS

- **Undergraduate Research Course Requirement:** All recipients of URP awards are required to enroll in "xxxx 490 Undergraduate Research," or "xxxx 290 URP" credit (Highlands) with a minimum of 1 credit for any semester during which they are actively engaged in the project and expect to receive a scholarship. This course will identify successful recipients on their transcripts with a letter grade for each semester.

- **Commitment and Effort:** The normal expected involvement in a URP project should represent effort equivalent to at least 2 semesters (approximately 100 hours) over the course of the academic year. At this credit level, student researchers are encouraged to meet with their mentor at least once a week. Higher credit loads may be awarded at the mentor's discretion up to 6 credits (3 per semester), commensurate with the scope of the project and the weekly hours of engagement with the project and interaction between the mentor and the student researcher.

- **Responsible Conduct of Research Training.** All URP students **must** complete Responsible Conduct of Research training, which is offered online and the research office will email students with registration information. Students who have had this training within the past 4 years do not need to attend it again.

- **Projects Requiring IRB (Institutional Review Board) Approval:** Projects involving the use of human subjects or the use of personal data utilizing private information of individuals are subject to the University of Montana's "IRB" approval. See Appendix H, Using Human Subjects, on the Undergraduate Research website for detailed instructions and guidelines.

- **Safety Training:** All successful applicants with projects involving environmental, health, or safety issues, such as the use of hazardous materials, hazardous machinery or equipment, field work, or potential exposure to disease-carrying animals must receive safety training. The training can be provided by the mentor or the Environmental Health and Safety Office and must be properly documented. The documentation must be sent to the Research Office promptly. Please see Appendix C, Safety Requirements, on the Undergraduate Research website for more information.

- **Paperwork Required for Receipt of Scholarship:** Each award recipient must accept the scholarship in writing to receive his/her scholarship. See Appendix E, Required Paperwork, on the Undergraduate Research website for details.

- **Oral Presentation**: All recipients are required to formally present their research results at a public forum. Most traditional URP students present at Montana Tech's Techxpo event held in late April. With the approval of the URP committee, other venues may be accepted as a substitute. See Appendix F, "Presenting Your Research", on the Undergraduate Research website for details. PHI students may be incorporated into the Techxpo event, the MAS Annual Meeting, or present at a separate event.

- **Change in Address, Phone or Email:** It is imperative that recipients notify urp@mtech.edu of any changes in address, phone, or e-mail during the year of the award. URP sends out important announcements and opportunities through urp@mtech.edu. Some campus announcements may be sent to the Montana Tech student email accounts only.

- **Opportunities to Present:** Award recipients are encouraged to present their research findings at the National Undergraduate Research Conference, Sigma Xi Annual Conference, or other appropriate professional meetings. Additional but limited funding may be available for approved presentations. Review Appendix G, Presenting Off Campus, on the Undergraduate Research website for information on how to apply.

- **Appendices:** https://www.mtech.edu/research/student-research/index.html