SCHOOL OF NATURAL RESOURCES & ENVIRONMENT
UNIVERSITY OF MICHIGAN

Information for Master's Project Clients

Academic Objectives

The Master's Project is an interdisciplinary group project in which students work closely with a faculty member to analyze and propose solutions to a real-world environmental problem. Each project requires both individual analysis and reporting as well as interdisciplinary analysis conducted by the group. Projects provide an integrative team-focused experience that approximates the work-world. Teams of 3+ students, with interdisciplinary backgrounds and varied past experience, work to develop the project scope based upon the proposed idea with the client. The team stays with the client until project completion.

The master's project includes the following academic expectations:

- the mastery of an appropriate set of academic material;
- an understanding of the major steps of the scientific approach (research design) or decision analysis (evaluation of management alternatives) and the successful application of these steps to an environmental problem;
- the ability to demonstrate critical thinking about an environmental problem and the application of appropriate analytical techniques in solving that problem;
- experience in both writing a scientific paper or technical report and giving an oral seminar to peers on the process and results of the study; and
- faculty evaluation of the final product.

Proposal – Agreement between Student Team and Client

Once the research scope is defined and proposal is written, the research is student driven. An important aspect of our degree program is to train students to be leaders and innovators; client input is welcome but students ultimately drive the shape of the final product. Thus the proposal is an important step in the master's project process. The written proposal, agreed upon by team members and clients, should include the following information before research begins:

- clear educational objectives;
- the anticipated research question, tasks, and products;
- a description of the project's interdisciplinary components;
- a description of each team member's academic or previous professional preparation to undertake the tasks that will be their responsibility in the work plan
- anticipated timeline of project and deliverables

Further information to discuss and put in writing with the client and team members before the project begins:

- Ownership of data/survey and the guidelines and restrictions put upon students by U-M's Institutional Review Board (IRB) ;
- Description of the deliverables;
- Discussion of expected client project feedback vs client project supervision

Non-Disclosure Agreements and other documents needing Institutional Approval

At times, clients will ask students to sign non-disclosure agreements, due to the nature of the data. Students should not sign documents *on behalf of the University of Michigan*. We don't want students doing private client work that is not to be shared with the broader community. We also don't want clients exercising control over what parts of the students work can be published or not.

All opus work concludes with a publishable document. Whatever proprietary statement is signed cannot prohibit your work to be shared with the general public, but you can work with the client to help protect or mask the proprietary information in your publishable document. For example, instead of identifying specific supplier names, one can use the pseudonym Supplier X. The publishable document may also be shared with a more limited audience and restricted to University of Michigan community members, or publication may be delayed up to one year following the completion of the project.

As a general rule, the University (not students) sign agreements with providers of materials and data used in projects before the transfer can take place. These agreements often include terms and conditions regarding intellectual property (IP) rights, publication privileges and restrictions, confidentiality of information, indemnification and warranty provisions. Negotiations of the terms of the agreement with the provider often are necessary. Such negotiations are conducted by the U-M's Office of Research and Sponsored Projects (ORSP), who has expertise in negotiating terms and conditions related to openness of research. Please contact the SNRE Business Office for guidance.

To the extent possible, the University seeks to avoid the acceptance of terms and conditions that impose liabilities or obligations. It is not possible to evaluate the seriousness or the likelihood of potential liabilities and obligations for the University without knowing something about the materials being transferred and how they are to be used. If there are other documents from the client needing institutional approval, such as a contract, please contact the SNRE Business Office for guidance.

Mentoring and Accessibility

Most likely, students became engaged in this project because they have career interests in this topical area. You may anticipate receiving questions inquiring about your career path or questions along your areas of expertise.

Past teams and clients found having one point of contact at the client organization (with one person identified as back-up) advances the communication connections and leads to quicker execution of ideas.

Financial Obligations

Clients may or may not choose to financially support the project team. Students submit funding proposals to SNRE for support to complete their research, but financial support is limited. In the past, groups have been supplemented by clients with limited financial assistance for items such as conference fees and travel assistance. Non-monetary support may take the form of providing a place to stay overnight during research, access to data sets, or supplies required for field work. Providing an individual student stipend or paid summer internship for one or more team members may increase student interest in your proposal, but does not guarantee that your project will be matched with a team.

SNRE Faculty Project Advisor Role

Each master's project team has a faculty project advisor. The student teams lead the project with the client; the faculty project advisor supports/advises with the students regularly and as needed on specific topics. It is unlikely the project advisor will have regular communication with the client. The faculty project advisor might be asked to serve in a mediator role between the team members and clients, as research and project questions may need clarification. Past teams have found it helpful to discuss the expected frequency of interaction between client and faculty when finalizing the written proposal prior to the start of research.

U-M Institutional Review Board (IRB)

The primary goal of the IRBs is to protect the rights and welfare of human research subjects recruited to participate in research activities conducted under the auspices of the University of Michigan. Secondarily, the IRBs seek to support the design and conduct of sound research by UM investigators in pursuit of the University's mission to develop and disseminate new knowledge in the public interest. The safeguarding of subject rights and welfare must at all times take precedence over the goals and requirements of any research endeavor overseen by the IRB.

Our students who conduct surveys must first have their surveys vetted through the IRB. The student investigator is responsible for preparing the IRB application and for ensuring that the study adheres to relevant policies and regulations (institutional, state, federal and international – where applicable).

Under the mentorship of the faculty advisor, the student investigator must:

- be familiar with the ethical and regulatory requirements for human subjects research and must complete the PEERRS human subjects research training module found at: http://my.research.umich.edu/peerrs/;
- submit an accurate and complete application to the IRB, allowing adequate time for review;
- obtain IRB approval prior to the initiation of research (including subject recruitment);
- conduct the research in accordance with the approved protocol;
- inform the IRB of all changes or additions to the previously approved study protocol;
- submit scheduled continuing review applications to the IRB, if required;
- manage research data carefully to ensure subject confidentiality;
- consult with the faculty advisor when problems are encountered; and
- report all unanticipated problems or serious adverse events involving risk to human subjects to the IRB as soon as possible.