

# WSI 200 - GL RESEARCH TECHNOLOGIES

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## Course Description

Advancements in Great Lakes research and monitoring techniques allow for an increased ability to access and assess remote locations through the use of enabling technologies and platforms including: Research Vessels, Remotely Operated Vehicles (ROV), SONAR systems (single beam, multibeam, scanning) and oceanographic buoy systems. Focus will be directed at understanding the basics of how each component is used and gain firsthand experience operating systems and collecting information. Field activities will take place in local water bodies, Grand Traverse Bay and onboard the R/V Northwestern. Group 2 course. Completion of MTH 111 and ENG 111 or appropriate placement scores.

## Credit Hours

3

## Contact Hours

4

## Lecture Hours

1.5

## Lab Hours

2.5

## Recommended Prerequisites or Skills Competencies

Recommended competencies: Ability to work/learn aboard R/V Northwestern and in the field. Completion of MTH 111 and ENG 111 or appropriate placement scores.

## Course Learning Outcomes

### Knowledge:

- Mobilize marine technology equipment for operation in the marine environment.
- Calibrate marine technology equipment for accurate collect of information in the marine environment.
- Prepare logs and operational reports of daily activities.

### Application:

- Describe the impacts of proper calibration in the collection of marine data.
- Correctly operate marine technology equipment for documenting subsurface features in the Great Lakes.

### Integration:

- Describe the impacts of environmental factors on data collection.
- Identify the proper marine technology equipment needed for conducting subsurface investigations.
- Will directly implement proper safety protocol in all operations.

### Human Dimension:

- Compare collected scientific information to public perception.
- Relate career opportunities to marine technology.

### Caring - Civic Learning:

- Assess potential marine ecosystem impact areas using technology.
- Directly observe impacts of invasive species on the Great Lakes ecosystem.

### Learning How to Learn:

- Discriminate between scientific knowledge and passion for a topic/ cause.
- Adapt to operational change during a marine based project.