



University of California, Santa Barbara  
Program Learning Outcomes

**MS in Earth Science**

***Students graduating with a MS in Earth Science should be able to:***

*(Items listed in italics are considered highly desirable outcomes but are not required for degree completion.)*

*Core Knowledge*

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- Demonstrate knowledge of Earth Science. This could entail, for example, an understanding of Physical Geology, including Plate Tectonics, Earth History, and Earth's interior.
- Demonstrate specialized knowledge of a field within Earth Science sufficient to conduct substantive supervised research.

*Research Methods and Analysis*

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- Identify and demonstrate knowledge of a range of qualitative and quantitative methodologies typically used in Earth Science research and critically read research that uses these methods.
- Discover and critically read published research in Earth Science and related fields.
- Frame empirical research and/or theory guided by prior knowledge.
- Implement a rigorous study using appropriate methods, measures and techniques.
- Critically evaluate and systematically analyze data to reach appropriate findings and interpretations.

*Independent*

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- Develop and implement directed research projects that meets high standards of theoretical and methodological rigor with guidance from mentor.

*Scholarly Communication*

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- Structure a coherent argument that rigorously presents and evaluates evidence to support claims.
- Review and cogently synthesize relevant literature.
- Write at a level and in a style of English consistent with that found in leading academic journals.
- Understand and properly use styles of citing, referencing, and formatting found in leading academic journals.

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## University of California, Santa Barbara Program Learning Outcomes, continued

- Clearly convey research findings through oral presentation supported by appropriate digital media.
- *Cogently summarize research and its significance to non-specialist audiences.*
- *Submit manuscripts for publication in peer-reviewed research journals.*

### *Professionalism*

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- Select appropriate conference venues for their research and submit competitive abstracts for papers, posters and symposia.
- *Prepare and present rigorous and innovative papers and posters at research conferences.*
- *Prepare manuscripts that meet the standards of academic and research journals and respond appropriately to recommendations for revision.*
- *When demanded, demonstrate collaboration, leadership and teamwork through participation in research teams and lab groups.*
- *Make effective contributions to university, community and professional service.*
- *Select appropriate fellowship and grant opportunities and prepare competitive proposals.*

### *Pedagogy*

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- Communicate effectively to groups in lecture format.