



University of California, Santa Barbara  
Program Learning Outcomes

**PhD in Environmental Science and Management**

***Students graduating with a PhD in Environmental Science and Management 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 environmental science and management through completion of core courses and written and oral exams. All Bren PhD students are required to take three core courses that focus on innovative approaches to interdisciplinary environmental research, and proposal and manuscript writing for professionals in interdisciplinary environmental science.
- Demonstrate specialized knowledge of a field of environmental science and management sufficient to conduct substantive independent research. Each Bren PhD student selects the area of specialization based on his or her research interests. The student will demonstrate specialized knowledge in this field through individualized written and oral exams developed by the faculty committee and a dissertation defense.

*Research Methods and Analysis*

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- Understand the range of qualitative and quantitative methodologies typically used in research in environmental science and management.
- Discover and critically read published research in environmental science and management.
- Frame empirical research and/or theory guided by prior knowledge.
- Design and implement an original, sound study using appropriate methods, measures, and techniques.
- *Critically evaluate and systematically analyze data resulting in original and appropriate findings and interpretations.*

*Independent Research*

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- Develop and implement their own research projects that meet high standards of theoretical and methodological rigor and significantly extend the boundaries of knowledge.

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

### *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.
- Clearly convey research findings through oral presentation supported by appropriate digital media.
- *Cogently summarize research and its significance to non-specialist audiences.*

### *Professionalism*

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- Demonstrate the highest level of professional integrity in research and teaching.
- Select appropriate fellowship and grant opportunities and prepare competitive proposals.
- 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.*
- *Demonstrate collaboration, leadership, and team work through participation in research teams and lab groups.*
- *Make effective contributions to university, community, and professional service.*

### *Pedagogy*

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- *Communicate effectively to large and small groups in both lecture and discussion formats. Assess students' academic performance using appropriate measures and rubrics.*