

**Bren School of Environmental Science & Management  
University of California, Santa Barbara**



**Eco-E Project General Guidelines  
MESM Class of 2022**

**3/29/21**

## INTRODUCTION

These guidelines define the Bren School's expectations for Master's Eco-Entrepreneurship (Eco-E) Projects and explain the Eco-E Project process, timeline, and required deliverables. MESM students have the option to complete either a Master's Group Project or an Eco-E Project to fulfill core requirements. The Eco-E Project prepares students for careers as solution-oriented environmental entrepreneurs or innovators who can identify opportunities where market demands overlap environmental solutions. Students who complete an Eco-E Project work as a team to test their ideas and perform market validation, as they develop a business model intended to create a positive and measurable environmental impact. Students will cultivate innovative and agile thinking, hone communication skills and learn how to build a convincing business case.

**Without exception, all students pursuing the Master of Environmental Science and Management (MESM) degree must successfully complete a Group Project or an Eco-E Project.** For more information about Group Projects, please refer to the MESM Group Project Guidelines.

In completing Eco-E and Group Projects, students are expected to seek advice from outside sources, which may include individuals affiliated with industry, government, and non-government organizations. However, unlike Group Projects, students may not conduct an Eco-E Project in collaboration with an outside client. The Eco-E Project, which includes all ideas and concepts set forth in the business model, must be the original work of the student team members.

All Eco-E Projects begin in Spring Quarter of the first year of study and end in mid-Spring Quarter of the second year. The project requires:

- an environment in which the students can learn to operate as an independent professional team;
- a spirit of trust and collaboration;
- student-generated projects to allow students to develop their own ideas and approaches;
- healthy and professional communication and rapport; and,
- the ability of students to choose courses of action, make mistakes, and learn from those experiences.

Students who complete Eco-E Projects are required to participate in two new venture competitions as part of the training. Participation in such competitions gives students valuable experience and increases the visibility of the Bren School and its students.

## Eco-E PROJECT TIMELINE OVERVIEW

Below are the key deadlines in this year's Eco-E Projects. Note that there may be additional deadlines associated with ESM 402A or faculty advisors may request additional milestones and set internal deadlines for drafts or other materials in addition to deadlines listed here.

<b>Spring Quarter 2021</b>	
Wed Apr 7	Project management plan due
Fri May 7	Eco-E Advisory Council (EEAC) Meeting
Fri May 21	Complete environmental problem literature review
By Fri Jun 11	<ul style="list-style-type: none"> <li>• Host spring review meeting with faculty advisors and external advisors;</li> <li>• Send brief project description for Bren School website to GP Coordinator;</li> <li>• Submit Team Evaluation to Eco-E Project Coordinator</li> </ul>

<b>Fall Quarter 2021</b>	
By Fri Oct 1	Confirm external advisory committee
By Fri Oct 15	Host fall review meeting with faculty advisors and external advisors
By Fri Oct 22	Submit 1-page summary of fall review meeting to faculty advisors
Fri Nov 19	Complete environmental impact literature review
Early Dec	Eco-E Advisory Council (EEAC) Meeting
Fri Dec 10	<ul style="list-style-type: none"> <li>• Submit outline of Final Report to faculty advisors;</li> <li>• Submit Team Evaluation to Eco-E Project Coordinator</li> </ul>

<b>Winter Quarter 2022</b>	
Fri Feb 4	Draft of Eco-E opportunity overview, environmental problem-solution analysis, business model environment, research methods and results, business model sections of Final Report due to faculty advisors
Fri Feb 4 & 11	Master's Project Faculty Reviews
Fri Feb 18	Complete draft of Final Report due to faculty advisors
Early Mar	Eco-E Advisory Council (EEAC) Meeting
Fri Mar 18	<ul style="list-style-type: none"> <li>• Final Report (.pdf version) due to faculty advisors</li> <li>• Submit Final Presentation Program Abstract to GP Coordinator (Template sent out by GP Coordinator 2 weeks prior);</li> <li>• Submit Team Evaluation to Eco-E Project Coordinator</li> </ul>

<b>Spring Quarter 2022</b>	
Fri Apr 8	Draft Executive Summary due to faculty advisors
1-2 weeks before Final Presentation	<ul style="list-style-type: none"> <li>• Take team photo w/ faculty advisors to use as the first slide in Final Presentation;</li> <li>• Submit draft Final Presentation to faculty advisors for review</li> </ul>
Fri Apr 15	Final Executive Summary (.pdf version) due to faculty advisors, Eco-E Project Coordinator and GP Coordinator
No later than Mon Apr 18	Print Executive Summary
Fri April 22	Master's Project Final Presentations
Early May	Eco-E Advisory Council (EEAC) Meeting

## 1. GENERAL INFORMATION

### A. Eco-E Project Timeline

MESM students begin their Eco-E Projects in the Spring Quarter of their first year of study and complete their project by the middle of Spring Quarter of their second year of study. Master's Project Faculty Review, including Group Projects and Eco-E Projects, are held in the middle of Winter Quarter, with the Final Report due at the end of Winter Quarter. Master's Project Final Presentations are generally held on Friday during the fourth week of Spring Quarter. The timeline overview provides deliverable due dates. Working with their faculty advisors, teams define their own deadlines for intermediate products.

### B. Academic Units and Grading

Students must register for ESM 402A, 402B, 402C and 402D in spring, fall, winter, and spring, respectively, for a total of 14 units. The instructor grades the ESM 402A course. The team's faculty advisors grade all other ESM 402 courses and the grades will be assigned at the end of their respective quarters.

**Students must achieve a grade of B or better on their Eco-E Project to be eligible for the MESM degree.** Students working together on a project may not necessarily receive the same grade. Additionally, students cannot be recommended for graduation until they have submitted an approved final report.

By the last day of each quarter, students are required to complete and submit an Eco-E Project Peer and Self Evaluation Form to the Eco-E Project Coordinator. These evaluations will be considered by the faculty advisor when grades are being assigned. The Eco-E Project Coordinator will provide an evaluation form.

### C. Student Time Commitment

Students should expect to devote **at least 10-12 hours per week** to their Eco-E Project, although more time may be needed for some tasks. Work on Eco-E Projects should be evenly allocated over the 3.5 quarters to avoid excess workload at the end of the project.

### D. Summer Eco-E Project Work

Some students may participate in a summer internship associated with the Eco-E Project. Students who are not involved in an Eco-E Project-related internship may continue some level of work on their projects during the summer, as determined by the team and faculty advisors.

### E. Deliverables

The major deliverables for the Eco-E Project are:

- ▶ Project management plan
- ▶ Quarterly meetings with the Eco-Entrepreneurship Advisory Council (EEAC)
- ▶ Faculty Review presentation
- ▶ Final report
- ▶ Executive summary
- ▶ Final presentation
- ▶ Participation in two approved new venture competitions
- ▶ Optional (not graded): Teams are encouraged to develop and create a media/communication product of their choice

### F. Idea Generation/Intellectual Property

As part of the educational process, during the course of the Eco-E Project, the individual team members will bring a variety of ideas and information to the Eco-E Project for discussion, review and analysis. Any ideas or information introduced to the Eco-E Project by

an individual team member will be available for use by any team member, both during or after the Eco-E Project, for any purpose, unless it is Prior IP. Prior IP is intellectual property that is developed by a team member before the Eco-E Project began and that is both recognized and protectable under United States copyright, patent or trademark laws. Any Prior IP introduced by a team member during the course of the Eco-E Project may be used by all team members in the course of the Eco-E Project for academic purposes.

To avoid misunderstandings and confusion, if a team member wants to contribute Prior IP to the Eco-E Project, that team member should clearly identify it as Prior IP to the other team members and notify the Eco-E Project Coordinator that the Prior IP is being contributed to the project for academic use in the Eco-E Project.

### **G. Authorship**

Frequently, teams divide the responsibility for some tasks that further the project; one or several individuals may invest more time in one aspect of the project than others. However, each member of the team ultimately contributes to the body of work that emerges from an Eco-E Project. Therefore, **every required paper, executive summary, presentation, etc. that is produced by the team MUST list every member as an author.**

Teams are encouraged, but not required, to present their Eco-E Project findings in formal conferences outside the university. Participation in such conferences gives students valuable experience and increases the visibility of the Bren School and its students. Teams also may want to publish results in a peer-reviewed journal. Teams may collectively develop criteria for authorship of these supplemental materials (e.g., 2-unit independent study with advisor) but all members of the team must agree to these criteria. A team member may choose not to be included as a co-author on a publication. However, ALL team members must be offered the opportunity to make their own decision about their authorship. Even after the project has ended, if a team member adapts the deliverables for presentation at a meeting or submission to a journal, EVERY team member should be listed as a co-author. Teams also may include faculty advisors or others who contributed substantially to the research as co-authors.

### **H. Data Distribution**

Datasets obtained or derived during your work may be licensed, copyrighted or confidential. Students should NOT make them available to third parties, or generally available online, without authorization from their faculty advisor AND the original source of data. If a team is working with confidential data, a Non-Disclosure Agreement (NDA) will likely be necessary between the source and UCSB. NDAs are developed, approved, and signed by UCSB's Office of Technology and Industry Alliances. Under NO circumstances can a **student** sign an NDA with a source.

### **I. Publishing**

If a team would like to publish its work, team members must discuss this with their advisor. Faculty advisors are experts in peer-reviewed publication, and students should take advantage of their knowledge and experience. Publishing peer-reviewed literature requires interfacing with a larger scholarly community, and this should be done in a way that reflects well on the students, their advisor, and the Bren School. Note that it often takes a prolonged period (months to years) to get a paper published.

### **J. Use of Human Subjects**

Faculty and students who engage in research involving human subjects generally must obtain prior approval from the UCSB Human Subjects Committee (HSC). "Human Subject" means a living individual about whom an investigator (whether professional or student) conducting research obtains (i) data through intervention or interaction with the individual or (ii) identifiable private information. This means that if a survey will be conducted, HSC

approval MUST be obtained in advance. Approval is required no matter with whom the team will interact - even your friends or family!

The Office of Research Human Subjects Department reviewed and discussed "Bren Eco-Entrepreneurship Market Research" related to the Eco-E Project and determined that it did not meet the criteria for human subjects research as defined in the Common Rule (45 CFR 46). IRB review and oversight is not required because the activities are not considered a systematic investigation designed to develop or contribute to generalizable knowledge; instead the activities are designed to allow students enrolled in courses within the program to meet their learning objectives.

At this time, the Eco-E Project teams may conduct market research as IRB approval is not necessary. Should student activities develop into meeting the criteria for human subjects research as defined in 45 CFR 46, the students will need to obtain IRB approval before continuing with the project(s).

## **2. COMPOSITION OF THE ECO-E PROJECTS**

### **A. Team Members**

Each team is composed of 3 to 5 students. Students are responsible for building their own teams.

### **B. Faculty Advisors**

Each Eco-E Project is assigned one business faculty advisor and one primary faculty advisor; however, each team must have at least two advisors who are Bren School ladder faculty (or 0% affiliates) on their master's thesis committee. If one ladder faculty is assigned as the primary faculty advisor, then the students must find at least one other Bren faculty member (or 0% affiliate) who will serve on their external advisory committee. The primary faculty advisor monitors progress and provides technical assistance, expertise, project evaluations, and grades, if applicable. Bren faculty and other experts on the external advisory committee are expected to review the team's progress at least once per quarter during review meetings but they are not expected to read and give detailed feedback on the team's deliverables (see External Advisors below). Project leadership, management, and the quality of the final products are ultimately the students' responsibilities.

Primary faculty advisors do not serve as project managers; their role is similar to that of a consultant. They are expected to attend regular meetings with the team and are responsible for grading. Advisors may offer reactive advice, responding to activities in the team and providing guidance when asked. The advisors also may give proactive advice regarding deficiencies and deadlines. It is important that students understand the role of the advisors and the limited, though important, role they play in directing the project. Each faculty advisor has his/her own unique approach. Students should expect variability in engagement, expectations, and feedback from one advisor to the next. During the first quarter, each team should clarify the expected level of interaction with their advisors.

### **C. External Advisors**

Interacting and networking with the professional community are critical components of the Eco-E Project process. Teams must obtain the counsel of two or more external advisors, individuals from government agencies, industry, non-governmental organizations, universities, or private citizens who may be interested in the project, its data or deliverables. An external advisor is someone who has knowledge about the project topic and can provide unbiased feedback. If one Bren faculty advisor is assigned to the team, then the team must select another Bren faculty member (or 0% affiliate) for the external advisory committee. However, only one of the two or more external advisors may be drawn from Bren faculty. Each team will be responsible for identifying external advisors and maintaining

professional contact with them for the duration of the project. Teams should confirm the external advisory committee by the beginning of Fall Quarter (see timeline for exact date).

Teams should schedule quarterly meetings with external advisors, in order to provide updates and gather feedback. If an external advisor is not able to attend a meeting in person, the team should engage the person by teleconference or Zoom. External advisors do not need to review the entire final report, although the team may ask for feedback on specific sections if the external advisor has time. External advisors also should be invited by the students to attend the project's Faculty Review and Final Presentation. External advisors are likely busy people and their time should be respected. When scheduling a meeting, the team should be prepared with an agenda and specific questions, so the meeting time is valuable for all parties.

#### **D. Eco-E Project Coordinator**

The Eco-E Project Coordinator is a Bren staff member who assists students, faculty advisors, and the Eco-E Program Committee in facilitating the Eco-E Project process. The Eco-E Project Coordinator for the Class of 2020 is Emily Cotter (ecotter@bren.ucsb.edu), Bren School Eco-Entrepreneurship Program Manager. Any questions or concerns regarding your team should be addressed to the Eco-E Project Coordinator.

#### **E. Group Project Coordinator**

The Group Project Coordinator is a Bren staff member who assists students, faculty advisors, and the Group Project Committee in facilitating the Group Project process. The Group Project Coordinator is Sean Kerr (sean@bren.ucsb.edu). Any questions or concerns regarding a Group Project should be addressed to the Group Project Coordinator.

#### **F. Eco-E Advisory Council (EEAC)**

The Eco-Entrepreneurship Advisory Council (EEAC) guides, supports, and promotes eco-entrepreneurship education at the Bren School, and serves as the primary conduit between the school and the entrepreneurial and investor communities. Members of the EEAC are leading innovators in business. Eco-E Project teams will meet with the EEAC on a quarterly basis (Fall, Winter, and Spring) to receive feedback, guidance and support. The Eco-E Program Manager will schedule the EEAC meetings and notify all participants of the expectations for each quarterly meeting.

#### **G. Eco-E Program Committee**

The Eco-E Project process is overseen by the Eco-E Program Committee, which consists of at least 3 Bren School faculty members. The Committee is responsible for selecting Eco-E Projects and monitoring the progress of each Eco-E Project. Additionally, the Eco-E Program Committee selects recipients of Eco-E Summer Fellowships and Professional Skills Grants. Any questions or concerns regarding your team or project should be presented to the Eco-E Project Coordinator or a member of the Eco-E Program Committee.

### **3. PROJECT MANAGEMENT**

#### **A. Team Meetings**

Teams are encouraged to meet as often as necessary, but all teams must meet at least once per week at a designated place and time. **Regular team meetings should not be scheduled on Monday through Thursday between 11:00 am – 12:15 pm** as these days and times are reserved for seminars, career talks, faculty meetings, and mandatory academic programs workshops. Teams are expected to participate in the scheduled ESM 402A class sessions and weekly "Eco-E Lab" sessions for ESM 402B and ESM 402C. In addition, the team must meet regularly with the primary faculty advisor: at least once per month in Spring Quarter of the first year and at least biweekly in Fall Quarter through Spring Quarter of the second year. However, it is the responsibility of the students, not the

advisor, to schedule the meetings and make necessary arrangements. Advance notification of absences is expected as a matter of courtesy. Participation in the 402-series classes, lab sessions and team meetings is a portion of each student's grade; missed sessions negatively affect the overall grade.

## **B. Scheduling Meeting Rooms**

**\* Due to the COVID-19 pandemic, room scheduling in Bren Hall is not permitted at this time. We will update you on room scheduling procedures if and when we are able to return to Bren Hall. Thank you for understanding. \***

## **C. Conflict Resolution**

The primary responsibility for intra-group conflict resolution lies with the team members. The faculty advisors should help to resolve any issues that cannot be adequately addressed by the team members. If a team is still unable to resolve a conflict after faculty arbitration, the team may seek assistance from the Eco-E Project Coordinator or the Chair of the Eco-E Program Committee, who will consult with the Eco-E Program Committee if needed. Students may also wish to contact the campus ombuds office (<http://www.ombuds.ucsb.edu>). Trained mediators are available at no cost throughout the year. Their mediation techniques are informal, confidential, and impartial.

If students have difficulty with a member of their team, it is critical that they maintain written documentation of the problem and attempted solutions. For example, if one member of a team is not doing his/her share of work or not providing timely products or products of adequate quality, the other team members must document dates of specific incidents and what efforts were made to address the problem. Only under these circumstances will it be possible for faculty advisors and administrative personnel to intervene and help craft a solution. Administrative involvement is generally limited and occurs only when there are serious issues that remain unresolved after considerable effort by the students and faculty advisors. Because of federal privacy laws, students may not be informed of specific interventions or disciplinary actions taken with other students; however, this does not mean the problem was not acted upon by administration.

## **4. PROJECT DELIVERABLES**

Refer to the timeline overview for a summary of Eco-E Project deadlines and deliverables.

Students must pass all ESM 402 courses with a B or better in order to be eligible for the MESM degree. Students shall be actively involved with their team throughout the year-long project.

### **A. ESM 402A (Spring Quarter)**

MESM students begin Eco-E Projects in Spring Quarter of their first year of study and are required to register for ESM 402A New Venture Formation (4 units).

ESM 402A has a regular class schedule that meets twice per week. In addition, students are required to attend relevant workshops, and must schedule at least (1) one weekly meeting with all team members and (2) one monthly meeting with the primary faculty advisor.

ESM 402A requires completion of the following elements:

#### **1. Project Management Plan**

Each team will prepare a 1-2-page project management plan detailing the following:

- ▶ Names of participants

- ▶ Purpose of the project
- ▶ Participant responsibilities
  - A definition of each area of responsibility (e.g., project manager, communications manager, data manager, financial manager, etc.)
- ▶ Idea generation and prior IP
- ▶ Termination date of project

All members of a team are expected to contribute to all project deliverables. Roles should be assigned to organize the team. While each role has specific responsibilities, all members of the team should participate to advance the project objectives and deliverables. Each team is required to assign the roles of project manager (PM), communications manager (CM), data/computing manager (DM) and financial manager (FM). The participant responsibilities section should include a description of the duties assigned to each of these roles and who will assume the roles.

A signed and scanned copy should be submitted to the Eco-E Project Coordinator. If any components of the project management plan change during the project, a revised project management plan should be created and signed by the team.

## **2. Eco-E Advisory Council (EEAC) Meeting**

Each team will introduce their initial business model hypotheses from their current business model canvas to the EEAC in Spring Quarter of the first year of study. Following the presentation, the team will receive feedback from the EEAC.

## **3. Sprint Updates**

During ESM 402A, each team will manage its business model development process collaboratively online and will document its hypotheses, experiments and insights by submitting progress reports. For each sprint, the latest Business Model Canvas should be downloaded and submitted as a PDF with the progress report.

Each sprint, teams should perform the following:

- Update the canvas
  - Create new hypotheses, under individual canvas building blocks.
  - Create a new canvas, if appropriate.
  - Submit PDF of latest canvas.
- Write up a progress report
  - Write a brief report summarizing what the team accomplished during the last sprint and discuss next steps.
  - Discuss hypotheses, experiments and key insights.
  - Submit progress report.

## **4. Sprint Presentations**

During ESM 402A, each team will present to the instructor and to the other teams their progress from sprint to sprint. Each sprint presentation should cover the following:

Which Business Model Canvas building block(s) did you test? What did you learn during the last sprint? How will you apply what you learned?

- ▶ Current Business Model Canvas
- ▶ Assumptions/Hypotheses
- ▶ Experiments
- ▶ Observations/Results
- ▶ Key Insights/Lessons Learned
- ▶ Decisions/Actions

## ► Next Steps

Each team presentation will be followed by class discussion on the project's recent progress to provide each team with peer feedback.

### **5. Environmental Problem Literature Review**

Early in the project, the team should find out what is known about the environmental problem that it is addressing. The team needs to locate materials already written about the specific problem and its location or other context, including agency, industry, and consultants' reports, which will often lead to critical datasets and useful scientific literature. The team will also need to search for technical literature (journals, books, electronic resources) describing and explaining the problem and methods for studying it.

The team should resist the temptation to locate a source on the basis of keywords or a title, and then to download it and absorb only enough information to write a sentence about it in a literature review. Storing a PDF file on the computer is not the same as absorbing the content well enough to explain which material in the paper is relevant and usable for a particular problem. At the same time, a team often cannot afford the time to become as broadly knowledgeable about the subject as an academic researcher. This task of locating relevant, useful information for a single project requires strong focus and balance between obtaining directly useful information and developing a breadth of perspective which can lead to innovation. It is not simply a matter of meeting a quantitative target, such as "refer to n articles."

Teams typically start their literature review with keyword searches (e.g. general concepts, species or chemical names, region or environment type) of publication databases such as the Web of Science. Teams unfamiliar with these databases should take advantage of the training in library research techniques provided by **UCSB Research Librarian Kristen LaBonte** ([klabonte@ucsb.edu](mailto:klabonte@ucsb.edu)). Each team is encouraged to schedule a meeting with the Research Librarian (separate from the workshop provided) at least once in Spring Quarter to learn more about the available resources that are related to their specific topic.

### **6. "Lessons Learned" Presentation**

At the end of the Spring Quarter, each team will present the evolution of its business model. Each team will give a 15-minute "Lessons Learned" presentation to a judging panel. Following the presentation, the team will participate in a Q&A session with the judges. In addition, the team will receive written feedback from each judge.

### **7. Spring Progress Review Meeting**

At the end of the Spring Quarter, each team must hold a progress review meeting. The purpose of the meeting is to report the team's progress to its faculty advisors and external advisors (if any have been invited to serve yet) and to obtain feedback intended to strengthen the team's research, now that the team's initial hypotheses for its business model have been developed.

The Spring Quarter progress review meeting should cover the following:

- a. Review of project objectives
- b. Environmental problem
- c. Current business model
- d. Research completed
- e. Preliminary results
- f. Timeline for remaining tasks and deliverables

Students must coordinate with their faculty advisors regarding the date, participants, and agenda for the spring progress review meeting. Once a date has been selected, students must schedule a meeting and invite their external advisors. Students should contact the external advisors at least 2 weeks before the spring progress review meeting. Students

should provide the faculty advisors and external advisors with a meeting agenda and any supporting materials.

At the meeting, teams should present a brief review of project objectives. These may evolve over time as the project develops. However, the team must maintain open communication with its faculty advisors about these changes and be certain that they agree with any proposed changes. Students should present the current results from their work and discuss their strategy for completing the remaining tasks and deliverables. The focus of the meeting should be to invite the faculty advisors and external advisors to share their feedback about how the team can solve any problems and complete the project on time.

Following the spring progress review meeting, students should write thank you notes to the external advisors.

## **8. Evaluations**

Each individual on the team must complete a self and peer evaluation and submit them to the Eco-E Project Coordinator by the last day of classes of the quarter. The evaluation requires realistic reflection on the progress and functioning of the team. The primary goal of the evaluations is to inform the faculty advisors and Eco-E Project Coordinator of team dynamics and any problems that may require future intervention. With appropriate justification, self and peer evaluations may impact grade assignments by the faculty advisor. Evaluations are confidential from other team members. This form will be provided to students via GauchoSpace.

### **B. ESM 402B (Fall Quarter)**

Students must enroll in ESM 402B Eco-E Project for 4 units with their advisor in the Fall Quarter of the second year of study.

ESM 402B has a regular class schedule that meets once per week. In addition, students are required to attend relevant workshops, and schedule at least (1) one weekly meeting with all team members and (2) biweekly meetings with the primary faculty advisor. In Fall Quarter, students typically work on developing a minimum viable product (i.e., a small-scale prototype or pilot project). Students work on data analysis and interpretation. Students create figures and charts for their final report and other products. They write an annotated outline of their final report and complete as much of the writing of the final report as possible. Teams must also hold a Fall Quarter progress review meeting to discuss any final business model pivots and to ensure the faculty advisors agree with any proposed changes to the project objectives.

#### **1. Fall Progress Review Meeting**

At the beginning of Fall Quarter, each team must hold a progress review meeting. The purpose of the meeting is to report the team's progress to its faculty advisors and external advisors and to obtain feedback, as the team plans its final research experiments, including any plans for developing a Minimum Viable Product (MVP).

The Spring Quarter progress review meeting should cover the following:

- a. Review of project objectives
- b. Environmental problem
- c. Current business model
- d. Research plan, including MVP development (small-scale prototype or pilot)
- e. Timeline for remaining tasks and deliverables

Students must coordinate with their faculty advisors regarding the date, participants, and agenda for the fall progress review meeting. Once a date has been selected, students must schedule a meeting and invite the Eco-E Program Committee and their external advisors. Students should contact the Eco-E Program Committee members and external advisors at

least 2 weeks before the fall progress review meeting. Students should provide all participants with a meeting agenda and any supporting materials.

At the meeting, teams should present a brief review of project objectives. These may evolve over time as the project develops. However, the team must maintain open communication with its faculty advisors about these changes and be certain that they agree with any proposed changes. Students should present the current results from their work and discuss their strategy for completing the remaining tasks and deliverables. The focus of the meeting should be to invite the faculty advisors, Eco-E Program Committee members and external advisors to share their feedback about how the team can solve any problems and complete the project on time.

Following the fall progress review meeting, students should write thank you notes to the Eco-E Program Committee members and their external advisors and submit to their faculty advisors a summary of the feedback gathered during the meeting.

## **2. Environmental Impact Literature Review**

Now that the team has refined its product/service concept, the team should be determining how its business model will generate a positive and measurable environmental impact. The team needs to locate materials already written about environmental problems/solutions and their locations or other context, including agency, industry, and consultants' reports, which will often lead to critical datasets and useful scientific literature. The team will also need to search for technical literature (journals, books, electronic resources). The team needs to gather data that will help support its methodology for measuring the environmental impact which may be generated by its proposed business model.

The team should resist the temptation to locate a source on the basis of keywords or a title, and then to download it and absorb only enough information to write a sentence about it in a literature review. Storing a PDF file on the computer is not the same as absorbing the content well enough to explain which material in the paper is relevant and usable for a particular problem. At the same time, a team often cannot afford the time to become as broadly knowledgeable about the subject as an academic researcher. This task of locating relevant, useful information for a single project requires strong focus and balance between obtaining directly useful information and developing a breadth of perspective which can lead to innovation. It is not simply a matter of meeting a quantitative target, such as "refer to n articles."

Teams typically start their literature review with keyword searches (e.g. general concepts, species or chemical names, region or environment type) of publication databases such as the Web of Science. Teams unfamiliar with these databases should take advantage of the training in library research techniques provided by **UCSB Research Librarian Kristen LaBonte** ([klabonte@ucsb.edu](mailto:klabonte@ucsb.edu)). Each team is encouraged to schedule a meeting with the Research Librarian (separate from the workshop provided) at least once in Spring Quarter to learn more about the available resources that are related to their specific topic.

The Environmental Impact Literature Review should be completed during Fall Quarter (see timeline for exact date).

## **3. Eco-E Advisory Council (EEAC) Meeting**

Each team will present the project's current business model and lessons learned during the EEAC meeting in Fall Quarter of the second year of study. Following the presentation, the team will receive feedback and guidance from the EEAC.

## **4. Outline for Final Report**

At the end of Fall Quarter of the second year of study, each team submits an outline for the final report to the faculty advisors. The outline should include:

- a. Eco-E opportunity overview
- b. Environmental problem-solution analysis
- c. Business model environment
- d. Proposed business model
- e. Environmental impact. Explain whether it will be positive and how it can be measured.
- f. Customer research methods to the extent completed. Describe anticipated methods, if not completed.
- g. Results to the extent completed. Include figures and tables to the extent completed. Describe anticipated results, if not completed.
- h. Discussion and conclusions to the extent completed.
- i. References

For each section of the outline, include as much information as completed to date and note the extent to which the section is completed, and/or any remaining obstacles to its completion (e.g., data availability).

As an appendix to the outline, describe the work to be completed during Winter Quarter and a timeline for remaining tasks and deliverables. Keep in mind that the draft background, methods and preliminary results are due to the faculty advisors by the end of the fifth week of Winter Quarter and the complete draft final report is due at the end of the seventh week. Build in sufficient time for the team's editor to review and revise the draft final report so that the various sections are written in a single, professional voice. The *draft* final report should be the team's first *best* effort to present its work!

## 5. Evaluations

Each individual on the team must complete a self and peer evaluation and submit them to the Eco-E Project Coordinator by the last day of classes in Fall Quarter. This form will be provided to students via GauchoSpace.

Teams must complete these deliverables by the end of Fall Quarter to the satisfaction of their faculty advisors. Failure to do so will result in a grade of B- or lower, or I (incomplete) or NG (No Grade) in ESM 402B until the work is completed.

### C. ESM 402C (Winter Quarter)

Students must enroll in ESM 402C Eco-E Project for 4 units with their advisor in the Winter Quarter of the second year of study.

ESM 402B has a regular class schedule that meets once per week. In addition, students are required to schedule at least (1) one weekly meeting with all team members and (2) biweekly meetings with the primary faculty advisor.

The following academic deliverables are due in Winter Quarter (see timeline for dates):

- a. Draft Eco-E opportunity overview, environmental problem-solution analysis, business model environment, research methods and results, and proposed business model (Week 5)
- b. Eco-E Project Faculty Review (Weeks 5 and 6)
- c. Complete draft final report (Week 7)
- d. Final report (End of Winter Quarter)

Teams must complete these deliverables by the end of Winter Quarter to the satisfaction of their faculty advisors. Failure to do so will result in a grade of B- or lower, or I (incomplete) or NG (No Grade) in ESM 402C until the work is completed.

### 1. Final Report

The final report is a complete discussion of the Eco-E Opportunity, environmental problem-solution analysis, business model environment, proposed business model and pivots based

on validated learning, research methods and results, and environmental impact to be derived from the proposed business model. A draft of the Eco-E opportunity overview, environmental problem-solution analysis, business model environment, research methods and results, and proposed business model must be submitted to the faculty advisors by the end of Week 5. A complete draft of the final report must be completed by the end of Week 7. The revised final report is due at the end of Winter Quarter (see timeline for dates). The deadline for the final report is firm. If additional time is needed, the team must complete a formal petition including justification for an extension to the deadline.

The Final Report typically includes the following:

- ▶ Title page
- ▶ Completed signature page
- ▶ Table of contents
- ▶ Abstract
- ▶ \*Overview of Eco-E opportunity
- ▶ \*Environmental problem-solution analysis
- ▶ \*Business model environment (context, design drivers and constraints), including industry/market analysis and competitive analysis
- ▶ \*Research methods and results
- ▶ \*Proposed business model, including discussion of business model pivots
- ▶ Environmental impact generated by the proposed business model
- ▶ Next steps for future research
- ▶ Appendix, including technical literature review

\*A draft of Eco-E opportunity overview, environmental problem-solution analysis, business model environment, research methods and results, and proposed business model are due to the faculty advisor at the end of Week 5 of Winter Quarter. A complete draft of the final report is due to the faculty advisor at the end of Week 7 of Winter Quarter. The revised final report is due at the end of Winter Quarter.

The final report should acknowledge any individuals or organizations that have supported the project in any significant way. Students must obtain their permission to include such acknowledgement; supporters have the right not to be publicly associated with the final report.

Adherence to accepted rules of citation is required. Teams should use the Chicago Notes and Bibliography style guide for all citations and use it consistently. Chicago footnotes are part of the "Notes and Bibliography" citation style. These footnotes are used to cite the sources you refer to in your text. Only readily retrievable sources are acceptable. The Chicago style includes the footnote and an alphabetical bibliography that lists all of your references. The bibliography can also include sources that you consulted but did not cite.

Interviews should be listed separately from written sources (i.e., "List of Interview"), following the Bibliography. For interviews, include the date of the interview, whether it was conducted in person or by phone, name of interviewee, name(s) of interviewer(s), and location for in-person interviews (or location of interviewee).

Teams should expect multiple revisions and iterations with the faculty advisor before their report is finalized. It is strongly recommended that one team member should serve as the *editor* to review all sections of the final report to make sure that the report is presented in a single and professional voice. It is NOT acceptable to submit a draft report that cobbles together several sections created by different team members without at least one team member (the editor) having reviewed all sections to make sure that the style and level of detail are consistent throughout the report.

Students and advisors must discuss and agree upon a realistic timeline and have consistent expectations for the review process. Some advisors will expect drafts earlier and may require longer periods for review and comment than others. In general, students should expect that their advisors will require at least one week, but maybe two weeks, to thoroughly review the report. More than one iteration likely will be necessary before the advisors find the report to be acceptable. The project timeline must take into account the required iterations for review and revision of the report and other project deliverables. The team's faculty advisors likely will be the only people who read and provide feedback on the complete draft final report. Faculty reviewers at the project's Faculty Review (see below) are not expected to read the draft final report, although some may choose to do so. Some external advisors also may have the interest, time and expertise to review and provide feedback on some or all of the draft final report and/or other deliverables.

Final reports must not exceed 100 pages, and must be free of typographical, formatting, and other errors. All final reports must be formatted in compliance with "Bren School Filing Guidelines" (see Appendix II).

Once approved, each team must provide an electronic copy (PDF format) of the final report, including the completed signature page, to the Eco-E Project Coordinator, the Group Project Coordinator, and faculty advisors. Since the team's business model may be considered proprietary, the final report will not be posted to the Bren School website, unless all team members agree to publicly share the final report in the Master's Project Directory on the Bren School website.

## **2. Faculty Review**

In Weeks 5 and 6 of Winter Quarter (see timeline for dates), each team presents a Faculty Review presentation of its project. By the end of Week 5, groups should have completed their draft of sections on the Eco-E opportunity overview, business model environment, research methods and results, and business model and submitted it to their faculty advisors for review. The Faculty Review presentation is an opportunity for students to describe their approach to testing their proposed business model, their lessons learned and next steps. The project Faculty Review is a checkpoint in the Eco-E Project process so that students receive feedback from other Bren faculty in addition to their advisors; the primary emphasis is on methodology, technical approaches, and preliminary results. At the time of the review, the project is still underway, and students should integrate feedback from the faculty reviewers to the extent possible.

For the Faculty Review, teams will prepare a 20-25 minute presentation. The focus should be on the project's environmental significance and impact assessment, as well as the data, methods, and validated learning used to inform the proposed business model. Following the presentation, two Bren faculty reviewers will engage students in 15-20 minutes of questions and discussion. It is recommended that no more than two team members present, since speaker transitions are disruptive and generally reduce the effectiveness of the presentation, especially when there is limited time. However, three team members can present if the team works on seamless transitions between the speakers to reduce disruption. All members of the team must be in attendance and will be part of a panel seated in front of the audience. The entire team will participate in answering questions, as appropriate. Every team member must present either the Faculty Review presentation or public presentation; teams should discuss in advance who will present at these events.

Teams should expect questions and criticism from their reviewers that may result in some revisions to their final reports. Faculty reviewers will likely not have been formally or informally involved in advising the project over the last year and hence can provide a new, fresh perspective. It is not expected that the two faculty reviewers will read the draft final report although some may choose to do so. It is the team's responsibility during the Faculty

Review to explain their work to the faculty reviewers and audience. The faculty reviewers provide oral and written feedback to the team summarizing the strengths of the project and/or recommendations for improvement. The Group Project Coordinator will collect and distribute written feedback to the team members and faculty advisors.

The entire Bren School community is invited to attend the Master's Project Faculty Review presentations. The Group Project Coordinator makes all arrangements, including securing rooms and setting the defense presentation schedule. As a courtesy, teams should invite their external advisors to attend the project Faculty Review.

#### **D. ESM 402D (Spring Quarter)**

Students must enroll in ESM 401D for 2 units with their primary faculty advisor in Spring Quarter of the second year of study. Students shall participate in meetings twice per week for the first 4 weeks of Spring Quarter with (1) all team members and (2) all team members and one of the faculty advisors. The following academic deliverables are due in Spring Quarter (see timeline for dates):

- a. Eco-E Project executive summary
- b. Eco-E Project final presentation

At the end of the fourth week of Spring Quarter (April 22, 2022), the Bren School hosts a special public event featuring presentations of the Group and Eco-E projects. The School invites academics from other UCSB departments and other universities, environmental professionals, Corporate Partners, and other Bren affiliates, in addition to the entire Bren community and public at large. Teams should personally invite their external advisors and other professionals with whom they interacted over the course of their project. Students may also extend invitations to personal guests.

#### **1. Executive Summary**

The executive summary is a short (1-2 page) document that provides a concise overview of the Eco-E Opportunity and articulates a compelling business model and investment opportunity (if applicable). The executive summary should convey the environmental problem tackled, expected environmental impact and/or conditions required to generate a positive impact, what kind of business you are in, the product or service offering, who the key players are, and what makes your venture unique amongst the competition. Developing an executive summary is a critical, foundational skill not only for entrepreneurs but also for any technical job or leadership role, including policy work, analysis, research, and outreach.

In composing an executive summary, convey the key components of the Eco-E venture opportunity:

- ▶ Environmental Problem
  - Why is this venture important ("so what")? This should be at the top, in the first 2-3 sentences, and should be clear.
  - What environmental problem does this venture help solve, and why does that matter?
- ▶ Venture Description
  - Clearly define who you are, what you do and summarize the team.
  - Explain why the who and what are truly unique.
- ▶ The Opportunity
  - Explain clearly why the market opportunity will be really big or why your target market is attractive.
  - What is the size of your market?
- ▶ Your Solution (Product/Service)
  - Your unique approach and why it's extremely valuable to your customers.
  - Basic technology explanations or differentiated intellectual property (IP).
  - What unique, defensible IP have you built or will you build that allows you to be a leader in the category if you are right about the market?

- ▶ Competitive Advantage
  - Describe your competitive advantage.
  - Explain why you will win and what is it about your team and the environment you operate in that makes it easy to win.
- ▶ Environmental Impact
  - How will you measure environmental impact?
  - What is your expected impact for a given unit of sales?
- ▶ Team and Contact Info
  - List the founders and provide company contact info.

Use a combination of figures, tables, graphics and text boxes to summarize the main points and engage a reader. Organize the information with headers, captions, and other signposts. Use of color is appropriate for an executive summary. However, the document should be designed to be legible if photocopied in black and white. The executive summary must include the Bren logo, the school name (Bren School of Environmental Science & Management, University of California, Santa Barbara), Eco-E Project members, faculty advisor names, and academic quarter (e.g., Spring 2022) in a clear and easy-to-read format. Use single-spacing for the body of the text of the executive summary. Use 11-point Garamond type (or comparable font), columns with 0.75-inch margins, flush left and right, and 0.5 inch between columns. Section headings should be in larger type.

A draft of the executive summary must be submitted to the faculty advisors by the second Friday in Spring Quarter (see timeline for dates). The faculty advisors should provide prompt feedback on the executive summary. Students should integrate the feedback and submit an electronic (PDF) copy of the final executive summary to the faculty advisors and Group Project Coordinator by the end of the third week of Spring Quarter.

Teams should make some double-sided hard copies (at least 50) of their executive summary for distribution at the Master's Project Final Presentation event.

## **2. Final Presentation**

Master's Project final presentations celebrate the completion of innovative, leading edge research and offer the opportunity for Bren MESM students the opportunity to share their work with the faculty, peers, potential employers, members of the community, family and friends. The final presentation should focus on the project findings and their significance. Final presentations contribute to the reputation and prestige of the Bren School and, hence, on the value of the students' degrees. All 2<sup>nd</sup> year MESM students are expected to participate in the final presentations. Participants are advised to dress in business attire.

Each team has 25 minutes, which includes 15 minutes for the presentation and 10 minutes for questions. It is recommended that no more than two team members present, since speaker transitions are disruptive and generally reduce the effectiveness of the presentation, especially when there is limited time. However, three team members can present if the team works on seamless transitions between the speakers to reduce disruption. All members of the team must be in attendance and will be part of a panel seated in front of the audience. The entire team will participate in answering questions, as appropriate.

The audience at the final presentations is different than the audience at the Faculty Review presentations. The final presentations need to be understandable to a diverse group (employers, experts, non-experts, family, and friends, etc.). This does not mean that it is necessary to "dumb down" the presentation. However, students should prepare a presentation for an audience that is more interested in substance and findings and less interested in, for example, analytical methods or data management.

Teams will have a videotaped practice session in advance of the final presentation.

Each project has one page in the Master's Project Final Presentations program. An abstract, along with the project title, team members, faculty advisors, and acknowledgements must be sent electronically to the Group Project Coordinator by the end of the Winter Quarter (see timeline for date).

### **3. Website**

The team should continue to update their website during the project. By the end of the project, the website should describe the Eco-E Opportunity, in addition to names of team members, faculty advisors and external advisors.

## **5. PROJECT EVALUATION**

### **A. Faculty Evaluation of Students**

Each student on the team will receive a separate grade for each quarter of the project (ESM 402A, B, C, D). If a team performs well together, it is likely that all team members will receive the same grade, but this is not guaranteed.

Student performance on an Eco-E Project is evaluated and graded based on demonstrated critical thinking, depth of understanding, interdisciplinary approach, originality, external development, resourcefulness, professionalism, and communication skills. Specific criteria that faculty advisors will use in assigning project grades include:

1. A critical perspective on the viability of the business model. This should include analysis of lessons learned through customer research.
2. A working understanding of the published literature and facts immediately relevant to the environmental problem addressed by the new venture. A literature review on the environmental problem should be largely completed by the end of Spring Quarter of the first year. A literature review on environmental impact should be largely completed by the end of Fall Quarter of the second year.
3. Knowledge and synthesis. A working understanding of the social and natural science dimensions of the issues and an aggressive plan for integration of these dual perspectives into the project.
4. Originality. Originality of analysis and all ideas and concepts set forth in the business model. This should be demonstrated throughout the project.
5. Professional Relationships. Formation of working relationships with industry experts and environmental professionals outside of the Bren School. Students will have to identify external advisors who can benefit the Eco-E Project. This should be completed by the beginning of Fall Quarter of the second year of study.

Team members shall demonstrate the highest level of professionalism and respect in their dealings with each other, their faculty advisors, external advisors and other stakeholders.

6. Resourcefulness. Throughout the project, students shall demonstrate initiative in finding information, performing customer discovery research, testing business model hypotheses, seeking outside advisors, and establishing internships for themselves, as appropriate.
7. Punctuality. Students shall deliver intermediate and final products on schedule.

8. Knowledge and analytical thinking. Students shall gain knowledge about the environmental problem, conduct a rigorous scientific analysis and produce well-reasoned conclusions and recommendations.
9. Communication skills. Oral presentations and written reports shall be well-organized, professional, and well-communicated. Each team member must co-present the work orally, either at the Faculty Review or Final Presentation, and be present and participate in both events.

All team members, particularly Project Managers, are expected to communicate concerns and issues with each other and their faculty advisors in a timely manner.

10. Participation. Students shall participate and actively contribute in meetings, training sessions, and events.

### **B. Student Evaluation of Faculty Advisors**

At the end of the project, all Eco-E Project members should complete an evaluation for their faculty advisors and submit it to the Group Project Coordinator (see Appendix I). The Group Project Coordinator compiles all comments for anonymity and provides them to faculty only after the final grade for ESM 402D is issued.

In the event that there are any serious advising problems mid-way through the project, this should be brought to the attention of the Eco-E Project Coordinator or the Assistant Dean for Academic Programs. These staff understand and are committed to respecting privacy and anonymity in working with students to try to find solutions to problems.

## **6. CREATING A PROJECT BUDGET**

Each Eco-E Project is allotted \$1,300 as a base budget, and up to an additional \$200 of printing at the Bren School. The Financial Manager (FM) for each team must attend a meeting with the Bren School's Finance Team in spring of the first year of study in order to active the team's account.

Each team must create a budget for its project, estimating expenses to the best of its ability and accounting for the following costs:

- a. Phone calls
- b. Printed copies of executive summary
- c. Printed copy of final poster (if requested by faculty advisors)

In addition to the above costs, each team must consider appropriate additional expenses such as travel, software, datasets, laboratory fees, business cards, reference books, poster production, presentation materials, photocopying, and research expenses when preparing the budget. The budget is for reasonable expenses related to the Eco-E Project.

Bren School Purchasing Procedures:

[http://www.bren.ucsb.edu/services/admin/purchasing\\_procedures.html](http://www.bren.ucsb.edu/services/admin/purchasing_procedures.html)

Please note: There are numerous restrictions to use of Eco-E Project funds provided by the Bren School. **These funds cannot be used (*\*see exception below*) to pay for gifts, awards, or donations. There are strict eligibility requirements related to hiring. The team's Financial Manager must discuss all potential hires with the Bren School's Business Officer before proceeding with the hire. Restrictions related to use of funds for food and beverages are as follows:**

- Funds may only be used for food and beverages associated with entertainment/business meetings if (1) prior approval is obtained from the Bren School's Business Officer; and 2) the entertainment is associated with a meeting that includes other people who are not from the University (i.e., external advisor). **The funds cannot be used to provide food and beverages for meetings that include only UC personnel and/or students.** There are NO exceptions to this UC policy.
- Funds may only be used for food and beverages related to travel if the travel conforms to UC travel policies ([http://www.bren.ucsb.edu/services/admin/travel\\_regulations.html](http://www.bren.ucsb.edu/services/admin/travel_regulations.html)).

*\*Under special circumstances, the team can request an exception to policy for expenditure for a gift. However, request for exception to the policy must be made to the Bren School's Business Officer in advance of the expenditure and approval is not guaranteed.*

### **Bren School Financial Unit**

Eco-E Project members will likely interact with some or all of the Bren School's Financial Unit staff over the course of their project.

- The Bren School's Business Officer is the primary contact for budget matters related to Group Projects. The Business Officer is Kim Fugate ([finance@bren.ucsb.edu](mailto:finance@bren.ucsb.edu); [kim@bren.ucsb.edu](mailto:kim@bren.ucsb.edu)); Bren Hall 2516; 805-893-3540.
- The Bren School's Financial Manager assists with budget matters related to Group Projects. The Financial Manager is Bridget Mastopietro ([finance@bren.ucsb.edu](mailto:finance@bren.ucsb.edu); [bridget@bren.ucsb.edu](mailto:bridget@bren.ucsb.edu)); Bren Hall 2514; 805-893-7457.
- The Bren School's Personnel/Payroll & Travel Coordinator processes paperwork related to travel associated with Group Projects. The Personnel/Payroll & Travel Coordinator Onella Gayraud may be reached at [travel@bren.ucsb.edu](mailto:travel@bren.ucsb.edu); 805-893-6114.
- The Bren School's Purchasing Coordinator processes purchase orders and reimbursements for items associated with Group Projects. The Purchasing Coordinator is Jewels Bolden ([purchasing@bren.ucsb.edu](mailto:purchasing@bren.ucsb.edu); [jewels@bren.ucsb.edu](mailto:jewels@bren.ucsb.edu)); Bren Hall 3524; 805-893-6114.
- The Bren School's Resource Coordinator processes parking permit requests and paperwork related to domestic travel. The Resource Coordinator is Dee White ([dee@bren.ucsb.edu](mailto:dee@bren.ucsb.edu)); Bren Hall 2400A; 805-893-8452.

### **Eco-E Project Financial Managers**

Each team must designate one person to serve as the team's Eco-E Project Financial Manager (FM). Teams inform the Group Project Coordinator of the name of the Eco-E Project Financial Manager by the first Friday of Spring Quarter of the first year of study. The list of student Eco-E Project Financial Managers will be provided to the Bren School's Finance Team and an informational/training meeting will be scheduled to discuss policies and procedures.

#### **A. Project Codes**

Each Eco-E Project is assigned a unique Project Code. A Project Code is an account number in the School's internal accounting system designated to track expenses. Each Project Code number looks something like "GP087." Team members must use this Project Code to identify charges (Purchase Orders [PO], faxes, phone calls, petty cash receipts, lab fees, etc.) for appropriate allocation and/or reimbursement.

## **B. Expense Tracking**

The student Financial Manager will receive login information for GUS, the school's internal accounting system used to track expenses. Students may log into GUS at any time to check their group's budgetary activity. The student Financial Manager will be responsible for tracking, managing, communicating about, and updating the group's budget. If expenses (phone, copies, travel, etc.) exceed the budgeted amount, the reimbursement requests will be returned, and the team members will be responsible for funding the activity. Please note: There may be a slight delay from the time a team makes a purchase or submits a reimbursement request to when it is posted in GUS. It is important for the student Financial Manager independently record and track all expenses for the team to avoid exceeding the project budget. Students are responsible for paying expenses above the project budget or not in compliance with UCSB and Bren School policies.

## **C. Printing**

Each team receives up to \$200 of printing on *Bren Hall* printers. These funds must be transferred to the individual printing accounts of Eco-E Project members. If teams require more than \$200 of Bren printing, then teams must request a transfer of some of their project funds to printing accounts. If there are not adequate funds remaining and teams require more printing, they will have to pay for it themselves and the charge will be billed to students' BARC account.

## **D. Copying**

Bren copiers are for staff and faculty use only. Copying may be done at Davidson Library or the University Center.

## **E. Phone Authorization Code**

Each Eco-E Project also receives a 5-digit phone authorization code, which allows members to make phone calls from any Bren Hall meeting room with an outside phone line. The telephones in the administrative offices are not available for student use. Instructions are below for how to make calls using an authorization code. All phone expenses are automatically allocated to each team's Project Code.

## **F. Instructions for making Eco-E Project phone calls:**

- Pick up the phone handset
- Dial #55. Wait for the confirmation tone.
- Dial the 5 digit phone authorization code. Wait to hear a dial tone.
- Dial 9 (to get outside dial tone), followed by the phone number.
- If there is an interrupted or "stutter" dial tone, reenter the Authorization Code.

## **G. Teleconferencing**

The Bren School has several speaker phones, which can be reserved and checked out for conference calling. These phones, along with a specific meeting room that has as an outside phone line, can be scheduled by contacting [scheduling@bren.ucsb.edu](mailto:scheduling@bren.ucsb.edu). When dialing the number, please use the phone call instructions above to ensure the call will be charged to the appropriate team account. Incoming phone calls to the specific phone line will not be charged to the team. A regular phone line can receive only one call at a time; however, conference phones may dial out to two different numbers. Please contact the Bren School's Financial Manager Bridget Mastopietro ([bridget@bren.ucsb.edu](mailto:bridget@bren.ucsb.edu)) at least 24 hours before your event if you need a Ready Talk account (for two or more parties calling in) or a UCSB authorization code (required for long distance calls). Other options for conference calling include Skype or Zoom.

## **H. Visitor Parking Permits**

Parking permits may be purchased for external advisors, etc. for parking on the UCSB campus to attend Eco-E Project meetings. To obtain a permit, contact Corina Aguiar ([corina@bren.ucsb.edu](mailto:corina@bren.ucsb.edu)) **at least 48 hours before** your visitor's arrival, and provide the:

1) name of the Eco-E Project; 2) Eco-E Project Code; 3) name of the visitor and his/her affiliation; 4) date and time of arrival; and 5) location of the meeting (building and room number). Each permit costs \$10/day and is charged to the Eco-E Project budget. Reserved parking (where a parking spot is designated for the visitor near Bren Hall) is more expensive (\$30/day) and should be used only when the visitor is an important individual with a time constraint.

### **I. Purchasing**

All purchasing must be processed through the Bren School Financial Office Coordinator. The preferred purchasing method is to email purchasing requests, the project team name, and project code to [purchasing@bren.ucsb.edu](mailto:purchasing@bren.ucsb.edu) so the Purchasing Coordinator can place the order. Another method of purchasing is to use personal funds to purchase the item and then submit a reimbursement request. Original receipt(s) are required for all expense claims. Student Financial Managers should understand purchasing policies and procedures ([http://www.bren.ucsb.edu/services/admin/purchasing\\_procedures.html](http://www.bren.ucsb.edu/services/admin/purchasing_procedures.html)) and ensure that their team abides by these rules. **Please note: Any non-consumable items purchased by the team with project funds are the property of the Bren School and must be returned to the school at the close of the project (e.g., an external hard drive). Purchase of clothing for Master's Project Final Presentations, or other project-related activity is not allowed.**

### **J. Reimbursement**

If a vendor does not accept a purchase order, team members may use personal funds and then submit a receipt to the Purchasing Coordinator to be reimbursed. When submitting receipts for reimbursement, please complete a [Miscellaneous Reimbursement Form](#) and include the following:

- Original receipt with name of vendor, date, and description of what was purchased
- Name of person to be reimbursed
- Original signature

Teams have access to their Eco-E Project funding until the last day of Spring Quarter. In some instances, access can be temporarily extended with advance approval from the Business Officer.

### **K. Travel**

All travel must be processed through the Bren School Financial Office. Student Financial Managers should familiarize themselves with the Bren School Travel Regulations. Questions regarding travel should be sent to [travel@bren.ucsb.edu](mailto:travel@bren.ucsb.edu). All travel reimbursement claims must be submitted to the Bren School Travel Coordinator no later than 30 days upon completion of travel to allow time for internal processing, and transfer to the UCSB Central Accounting Office in time for the 45-day UCSB processing deadline.

### **L. Outside Funding**

Most Eco-E Projects do not require outside funding and are able to fully complete the scope of work within the budget provided by the Bren School.

#### Gifts

In limited circumstances, an external advisor or other external funding source may wish to make a contribution to support an Eco-E Project or the Eco-E Program. In this case, please contact the Bren School's Assistant Dean for Development, Lotus Vermeer, [lvermeer@bren.ucsb.edu](mailto:lvermeer@bren.ucsb.edu). It is imperative that individuals and organizations are NOT solicited for gifts. **Active fundraising by students without guidance from the Assistant Dean for Development is NOT appropriate.** Any discussion about potential gifts to the Bren School should be directed to the Assistant

Dean for Development. A gift cannot have deliverables of any kind. If there are deliverables, or if there is paperwork to be signed, it is highly unlikely that it is a **gift**. No one in the Bren School has the authority to sign paperwork related to acceptance of money.

If a gift is received to support a particular Eco-E Project, then a special Project Code will be created for the team to access these funds. If there are funds remaining at the end of the project, they will return to the Bren School general fund.

Keep in mind that federal agencies, other governmental agencies and many non-governmental organizations cannot give money in the form of a gift. In this case, any funds contributed toward Eco-E Projects should either be managed by the agency or organization (strongly recommended) or directed to UCSB as a contract or grant.

#### Grants/Contracts

A contract or grant is used when money is given to the University for a specific deliverable. Given the complexities of submitting proposals for contract and grant funding, the length of time it tends to take to process proposals and ultimately receive funds, and the high overhead rate, it is far better if the Bren School receives funding to support Eco-E Projects in the form of a gift or, better yet, if the external funder manages the funds directly. Please note that grants and contracts are required to provide for indirect (overhead) costs, which are 55% of the award, to be paid to the university; gifts are assessed 6% overhead. If an Eco-E Project external advisor would like to provide a grant or contract to the school, please direct them to the Business Officer. No Bren student or faculty member has the authority to sign agreements related to acceptance of money.

## **7. COMPUTER RESOURCES**

The following describes computer resources available to each Eco-E Project and recommended management practices. Most of these suggestions do not require any special privileges; those that require the involvement of the Bren School Compute Team are clearly noted.

### **A. Data Manager and Communications Manager**

Each team should designate a Data Manager (DM) who will have primary responsibility for maintaining the team's shared online information. Designating a single Data Manager ensures that a team's information is consistent by allowing only the manager to modify it (except as specifically described below). The Data Manager should also be responsible for briefing team members on the use of directory and file permissions and managing information within the team's information architecture. The Data Manager will also be authorized to install software on the team's computer.

Each team should also designate a Communication Manager (CM). The CM will manage public communications on behalf of their team. CM responsibilities may include writing the short project summary for the Bren Eco-E Project website in Spring Quarter of the first year, preparing educational materials about the project, maintaining a public blog or social media posts, presenting at a Flash Talk presentation for the MESM class at the beginning of Fall Quarter of the second year, and taking the lead to draft the 1-2-page executive summary in Spring Quarter of the second year. The CM is responsible for attending relevant training workshops, ensuring the team's research narrative is strong in both the Final Presentation and Final Report, and is the team's primary editor on all final deliverables to ensure these materials are presented in a cohesive and professional voice. The CM also serves as the lead in working on any required outreach materials for their project (not mandatory, variably applicable).

## **B. Project Alias**

Each team chooses a short alias (less than 20 characters) for their project. The alias is used to label the project's online artifacts (directories, mailing lists, etc.) and identify the project in shorthand. The alias should be professional and should reflect some aspect of the team's research topic.

## **C. Team Email List**

Each team will be added to an email list for their project; the email is [gp-alias@bren.ucsb.edu](mailto:gp-alias@bren.ucsb.edu). This will be used as a contact email for the entire team and is accessible to Bren staff and outside parties. Teams can also make an internal list for only team members and/or their advisors as necessary. Directions for setting up a Google Group are located here: <https://bren.zendesk.com/hc/en-us/articles/115002102646-How-do-I-get-an-email-list-for-my-group-project>

## **D. Shared Directory**

The Bren School Compute Team will create a directory on the shared drive for each Eco-E Project. The shared directory will be named "[alias]," and will be housed on a Bren School Windows server (Babylon). This shared directory will be accessible from all Windows systems in the ESM domain via \\babylon\GroupProjects2021GPSHARE. For Eco-E Project members, this will be mapped to G:\. The pathname "gpshare" in the remainder of this document refers to this shared directory.

## **E. Team Access Permissions**

The Bren School Compute Team will create a Windows group for each Eco-E Project, named "[alias]." The members of these Windows groups will be the student members of each team and their faculty advisors. Unless otherwise specified, all files and directories discussed in these guidelines will be owned by the team's Data Manager. The Data Manager should assign, read, and execute permissions to the members of the team. The Data Manager and all team members are responsible for ensuring that the Windows group "ESM – System Admins" have "full control" permissions on all directories within the Eco-E Project's directory structure that the team wishes to be backed up. Without appropriate permission, regular backups of a team's electronic files will not occur, and lost files will not be recoverable. Students can access the permissions for a folder or files by right-clicking on it -> Properties -> Security.

## **F. Working Documents (Recommended)**

Each team's Data Manager may create a team-writeable directory GPSHARE\workdocs, under which each project member may create their own subdirectory GPSHARE\workdocs\member. These subdirectories should be readable by a team's Windows group, but writeable only by the owner and the Data Manager. The protocol for collaborating on a document is as follows: Each collaboratively authored document should be assigned a lead author who is responsible for maintaining the master copy. Each collaborator should be free to place components or edited versions in their own GPSHARE\workdocs\member\document subdirectory, where the document has a unique name for the document, assigned by the document's lead author. It should be the lead author's responsibility to synthesize the final version of the document for submission to the Data Manager to post for the team members to read.

## **G. Library (Recommended)**

Each team's Data Manager may create a team-writeable directory GPSHARE\library, in which team members can place static (i.e., read-only) documents for the project to share. Team members should give the Data Manager their files that they would like to house in the Library. This directory should be "read only" for all team members with the exception of the Data Manager.

## **H. Calendar (Optional)**

Each team's Data Manager and/or other specified team members may maintain a project calendar for project events and deadlines, Google Calendar, etc. Each student has an individual Google Calendar account, which can be used to propose Eco-E Project meetings, etc. Please remember that when using individual accounts, only the person proposing the meeting may make changes to the meeting. Therefore, one person should be selected to schedule meetings. For more Google Calendar information, visit:

<https://bren.zendesk.com/hc/en-us/sections/201311245-Google-Calendar>

## **I. References (Optional)**

Each team's Data Manager may maintain a shared file of bibliographic references that will be incorporated into project reports, papers, etc. Some teams choose to use an online citation manager; basic accounts are often free.

## **Appendix I**

### **Evaluations**

#### **Peer & Self Evaluation:**

The team evaluation form will be submitted via GauchoSpace. The form template will be posted on GauchoSpace two weeks prior to the end of each quarter.

#### **Faculty Evaluation:**

The faculty evaluation will be submitted via Qualtrics. The Group Project Coordinator will send a link to the survey in the second half of Spring Quarter of the second year of study. Survey results will be kept anonymous, compiled in summary format, sent to advisors and recorded in personnel files.

## Appendix II

### **Formatting & Filing Requirements for MESM Eco-E Projects**

#### **Responsibility for the Content of the Final Report**

The team members and faculty advisors are responsible for the content of the final report. The faculty advisors must review the entire draft report before giving final approval. This review includes:

- All preliminary pages or front matter (e.g., preface, dedication, acknowledgements, etc.)
- The main body of the report (including figures, charts or other inserted matter)
- The back matter (e.g., notes and bibliography, appendices, etc.)

In general, no changes may be made to the final report after the faculty advisors have signed the approval page. If changes are necessary after the faculty advisor has approved the report, the team must have their advisors sign a new approval page.

The organization, presentation, and documentation of each Eco-E Project must meet the standards set by the faculty advisors and the Bren School. For general information, students may consult a standard style guide; The University of Chicago Manual of Style is recommended as an authoritative source. Students who have discipline-specific questions should consult their faculty advisors.

#### **Eco-E Project title and signature page requirements**

##### Title page requirements

Each Eco-E Project final report must include a title page with the following information:

- Company Logo (optional)
- Title of the Eco-E Project (name of Eco-E venture and tagline)
- "Master of Environmental Science and Management" as the students' degree objective
- Bren School of Environmental Science & Management, University of California, Santa Barbara
- Names of team participants (alphabetical order recommended) and faculty advisors
- Month and year the final report is signed by the faculty advisors

##### Signature page requirements

The format of the signature page is displayed in Appendix IV. The signature page should be placed immediately following the title page. The signature page should not be numbered but should be counted toward subsequent numbering.

Due to concerns over privacy, if the Eco-E Project final report will be posted to the Bren website, students may include an unsigned signature page in the .pdf of their final report. The unsigned signature page must include the typed names of students, in alphabetical order, followed by a section with names of faculty advisors, also in alphabetical order. "This Eco-E Project is approved by:" must appear immediately above the faculty advisors' names. The approval page must contain the month and year the project is signed by the faculty advisors.

Eco-E Project faculty advisors and project members must sign the original printed copy of the signature page, whether or not the signed page is included in the final report. All signatures must be in black or blue ink (no other color ink is acceptable) or by digital

signature (e.g., DocuSign). The typed name of the person signing must appear immediately to the right of or below the signature.

The signed signature page, rather than a blank, may be scanned and displayed in the final report, immediately following the title page, but signatures will be redacted from the version posted online.

### **Standards for Eco-E Project titles**

The Eco-E project title should use specific, unambiguous descriptive words that will ensure electronic retrieval. Do not use formulae, symbols, superscripts, Greek letters, or other non-alphabetical symbols in the title. Eco-E project titles should represent the name of the new venture or provide a short description of the new venture. Titles that contain more than 10 words are considered wordy. Subtitles should be used only when absolutely necessary.

### Dates on title and signature pages

The approval/signature page and the title page must have the month and year the project is signed by the faculty advisors.

### Table of Contents

A table of contents is required. The table of contents should include the major chapters, subchapters, and figures and tables.

Other preliminary pages such as those for acknowledgements or list of figures and charts are optional.

### Abstract

An abstract is required. It should provide a brief synopsis of the Eco-E Project and be succinct (200 words). The abstract should be placed following the table of contents and any optional preliminary pages (i.e., acknowledgements).

The table of contents, other preliminary pages, and abstract must meet all formatting requirements delineated below. All preliminary pages, with the exception of the title page and approval (signature) pages, must be numbered with lower case Roman numerals beginning with Roman numeral iii; see below for additional information on pagination and placement of page numbers.

### Key Words

Select up to **10 key words** to describe the project.

### Legibility and appearance

The final report must be produced using a font that is highly legible and dark enough that it can be reprinted clearly.

### Dimensions

The final report must be formatted to letter-size (8.5 x 11 inches). For information on handling oversized materials such as maps, please consult the Group Project Coordinator.

### Margins

The following are minimum margin dimensions. The group may set larger margins but must be sure that the final text is well within these guidelines.

LEFT = 1.25 inches (this margin is wide for binding requirements)

TOP = 1 inch from top of paper

RIGHT = 1 inch

BOTTOM = 1 inch from bottom of paper

Aside from page numbers, nothing must intrude into the margins. These minimum specifications also apply to all figures, charts, graphs, illustrations and appendices. When oversized pages are used, the same margin measurements must be maintained.

#### Page Numbers

Page numbers should be centered on the page 0.75 inches from the bottom of the edge of the page. Placement of page numbers must be consistent throughout the final report. Provide space between the text and the page numbers.

#### Pagination

Every page must be numbered consecutively. Except where noted below, each page of the entire report must be numbered in accord with the following standards:

Neither the title page nor the approval (signature) page is to be numbered; however, these two pages are counted when numbering the following preliminary pages even though they are not numbered.

The preliminary pages following the title and approval pages must be numbered sequentially beginning with lower case Roman numeral "iii." All preliminary pages are to be numbered using lower case Roman numerals (iii, iv, v, vi, etc.). This includes dedications; the tables of contents; lists of figures, tables, symbols, illustrations, and photographs; prefaces; acknowledgments; and abstract.

The main body of the text and any back matter must be consecutively numbered with Arabic numerals (1, 2, 3, etc.), including text, illustrative materials, bibliography, notes, and appendices.

Correct pagination is required for the final report to be acceptable: no missing pages, blank pages, or duplicate numbers or pages.

#### Line Spacing

The final report should be single spaced with double spacing between paragraphs and sections.

Single spacing should also be used in those places where conventional usage calls for it, i.e., title page; figure, table, and photo captions; footnotes; indented quotations; and bibliography. When individual footnote or bibliographic entries are single-spaced, there must be double spacing between entries.

#### Fonts and Font Sizes for the Text and Notes

A font size of at least 12 point must be used for the basic report text. Standard fonts such as Arial, Century Gothic, Helvetica, Verdana, Tahoma, or Times are recommended.

A font size of at least 10 point must be used for footnotes and captions. Script, calligraphy, italics, and specialized art fonts are not acceptable for the main body of the text.

Italics may only be used for quotations, headings, labels, book titles, foreign words, scientific names or occasional emphasis. Fonts for appendices, charts, drawings, graphs, and tables may differ from that used for the text. The print should be letter quality with dark black characters that are consistently clear and dense.

#### **Filing the Eco-E Project Final Report**

Once the faculty advisors approve and sign a team's project, no changes can be made to the final report. The final report, including the completed signature page, must be submitted in electronic (.pdf) format to the Eco-E Project Coordinator and Group Project Coordinator

by the end of Winter Quarter. A petition is required for late submissions. Please contact the Group Project Coordinator with any issues or questions about these guidelines.

The Group Project Coordinator will review each final report to verify that it meets the filing standards and will notify each team if corrections are necessary.

#### FORMATTING & FILING CHECKLIST

<b>CHECKLIST AREA</b>	<b>BREN REQUIREMENT</b>
Legibility	Clear and legible font used.
Dimensions	8.5 x 11 inches (exceptions made for oversize or special materials).
Number of copies	One electronic (.pdf) copy of final report for Bren School
Margins	Left margin at least 1.25 inches; top line of type, right margin, and bottom line of type at least 1 inch from edge. Other than page numbers, nothing intrudes into margins.
Page Number Placement	Page numbers placed 0.75 inches from bottom edge of pages and consistently placed throughout the report.
Pagination Standards	Each page of final report numbered (except title and approval pages). No missing, blank, or duplicate numbers or pages. Lower case Roman numerals used on preliminary pages. Arabic numerals used to number text and back matter.
Numbering of Preliminary Pages	Title and approval pages counted but not numbered. Subsequent pages (e.g. the table of contents) numbered beginning with Roman numeral iii.
Spacing Between Lines	Text single spaced, except where conventional usage calls for only single spacing (title page, long quotations, etc.) or double spacing (between paragraphs and sections).
Fonts & Font Sizes	A font size of at least 12 point for preliminary pages and text. A font size of at least 10 point for footnotes and captions. Use of standard font recommended.
Dates Used On Approval and Title Pages	Month and year the faculty members will sign the approval and title page.
Abstract	Not to exceed 200 words
Standards Governing Taglines	Concise taglines (not to exceed 10 words) that summarize the new venture.
Faculty Signatures on Approval Pages	Faculty advisors' signatures in black or blue ink.
Responsibility for Content	Students and faculty advisors responsible for all content of the final report. Faculty advisors must review entire final report before signing.

**Appendix III**

**Sample Final Report Title Page**

UNIVERSITY OF CALIFORNIA  
Santa Barbara

LOGO (OPTIONAL)  
PROJECT TITLE

An Eco-E Project submitted in partial satisfaction of the requirements for the degree of  
Master of Environmental Science and Management  
for the  
Bren School of Environmental Science & Management

by

MEMBER NAME  
MEMBER NAME  
MEMBER NAME  
MEMBER NAME  
MEMBER NAME

Committee in charge:  
ADVISOR NAME  
ADVISOR NAME  
(if more than one)

MONTH AND YEAR OF FILING

## Appendix IV

### Sample Final Report Signature Page

PROJECT TITLE

As authors of this Eco-E Project report, we are proud to archive this report in the Bren School's library of Eco-E Projects. Our signatures on the document signify our joint responsibility to fulfill the archiving standards set by the Bren School of Environmental Science & Management.

---

MEMBER NAME

---

MEMBER NAME

---

MEMBER NAME

---

MEMBER NAME

[The faculty advisors may change this statement prior to submitting this report].

The Bren School of Environmental Science & Management produces professionals with unrivaled training in environmental science and management who will devote their unique skills to the diagnosis, assessment, mitigation, prevention, and remedy of the environmental problems of today and the future. A guiding principle of the School is that the analysis of environmental problems requires quantitative training in more than one discipline and an awareness of the physical, biological, social, political, and economic consequences that arise from scientific or technological decisions.

The Eco-E Project fulfills a core requirement for the Master of Environmental Science and Management (MESM) Program. The project is a year-long activity in which small teams of students conduct customer discovery research to develop a business model for a new environmental venture, in addition to focused, interdisciplinary research on the scientific, management, and policy dimensions of a specific environmental issue. This Eco-E Project Final Report is authored by MESM students and has been reviewed and approved by:

---

ADVISOR

---

ADVISOR

---

DATE

## Appendix V

### Sample Eco-E Project Budget

Item	Cost
Conference Calls	\$30
Executive Summaries	\$200
Review Meeting Refreshments (permitted only with non-UCSB personnel present)	\$50
Software	\$340
Presentation expenses	\$50
Conference attendance	\$360
Administrative supplies	\$20
Business cards	\$60
Travel / Site visits	\$190
TOTAL	\$1,300
Printing*	\$200

\* Printing budget is fixed at \$200 to an individual in the Eco-E Project.