

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



Eco-E Project General Guidelines

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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 who can identify opportunities where market demands overlap environmental solutions. Students who complete an Eco-E Project will work as a team to develop a business model, build a prototype concept, and create a go-to-market strategy for a new environmental venture. Students will cultivate innovative and agile thinking and leadership skills.

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 have 3.5 quarters of corresponding courses, beginning spring quarter of the first year of study and ending in 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 communications and rapport; and,
- the ability of the 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 some of 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 may set internal deadlines for drafts or other materials in addition to deadlines listed here.

Spring Quarter 2018	
Mon Apr 23	Team partnership agreement due
Fri Apr 27	Eco-E Advisory Council (EEAC) Meeting
Wed Jun 6	"Lessons Learned" Presentation to Eco-E Program Committee
Fri Jun 8	Submit Team Evaluation Form
Fri Jun 15	Send web link for Eco-E Project website to Casey Hankey, GP Coordinator

Fall Quarter 2018	
Fri Oct 5	Revised team partnership agreement due (if applicable)
Early December	Eco-E Advisory Council (EEAC) Meeting
Fri Nov 9	Complete Technical Literature Review
Fri Dec 14	Submit outline of Final Report to faculty advisor(s)
Fri Dec 14	Submit Team Evaluation Form

Winter Quarter 2019	
Fri Jan 18	Revised team partnership agreement due (if applicable)
Early February	Eco-E Advisory Council (EEAC) Meeting
Fri Feb 22	Draft of Final Report due to faculty advisor(s)
Fri Mar 1 & Fri Mar 8	Master's Project Defenses
Fri Mar 22	Final Report (.pdf version) due to faculty advisor(s)
Fri Mar 22	Submit Final Presentation Program "Abstract" to Casey Hankey, GP Coordinator (Template sent out by GP Coordinator 2 weeks prior)
Fri Mar 22	Submit Team Evaluation Form

Spring Quarter 2019	
Fri Apr 12	Draft Marketing Collateral Piece due to faculty advisor(s)
Fri Apr 12	Draft Project Poster due to faculty advisor(s)
1-2 weeks before Final Presentation	Take group photo w/ faculty advisor(s) to use as the first slide in the Final Presentation
1-2 weeks before Final Presentation	Submit draft Final Presentation to faculty advisor(s) for review
Fri Apr 19	Final Marketing Collateral Piece and Project Poster (.pdf version) due to faculty advisor(s), GP Coordinator and posted on Eco-E Project website
No later than Mon Apr 22	Print Final Poster and Project Briefs
Fri Apr 26	Master's Project Final Presentations (hard copy poster will be collected by Casey Hankey, GP Coordinator, after Final Presentations)

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 Defenses, including Group Project and Eco-E Project Defenses, are held toward the end 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 for a total of 14 units. The instructor grades the ESM 402A course. The team's faculty advisor(s) grade(s) all other ESM 402-series courses. With the exception of ESM 402B, the grades for these courses will be assigned at the end of their respective quarters. **ESM 402B will always be assigned a grade of IP (in progress) at the end of its quarter, and will then retroactively receive the same grade assigned to ESM 402C.**

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.

Students are required to complete a team evaluation and submit it to their faculty advisor by the last day of the quarter. Your 402-series instructor will provide an evaluation form. Faculty advisors will consider peer evaluations of student team members in assigning grades.

The faculty advisors' signatures are required on the signature page of the report. Students may submit their signature page in hard copy, separate from their .pdf final report, if they are concerned about privacy. Even if passing grades are assigned, advisors may withhold their signatures until the Eco-E Project is fully completed to their satisfaction. Students cannot be recommended for graduation until they have submitted an approved final report.

C. Student Time Commitment

Students should expect to devote, on average, **at least 10-12 hours a 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 usually 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.

E. Deliverables

The major deliverables for the Eco-E Project are:

- ▶ "Project Updates" for each sprint
- ▶ "Lessons Learned" presentation
- ▶ Quarterly meetings with the Eco-Entrepreneurship Advisory Council (EEAC)
- ▶ Team website
- ▶ Participation in two approved new venture competitions
- ▶ Final report

- ▶ Marketing collateral piece
- ▶ Poster
- ▶ Final presentation

F. Authorship/Ownership

Each member of the team is responsible for the intellectual property of the project. That means that **all required Eco-E Project deliverables (except for the marketing collateral piece) must list every team member as an author.** Teams may collectively develop criteria for authorship of supplemental materials (e.g., publication of peer reviewed literature) 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 if a team member adapts the deliverables after the project has ended for presentation at a meeting, inclusion in a business plan 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.

G. Publishing

If a team decides it wants to try to publish their work, it is essential that they discuss this with their advisor and obtain their guidance. Faculty advisors are experts in the process of peer-reviewed publication, and you want to 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 you, your advisor, your client, and the school in general. Note that it often takes quite some time (months to years) to get a paper published.

H. Data Management

If a team decides it wants data and metadata emerging from the project to be archived for public use, it is essential that they discuss this with their advisor and obtain their guidance. The team should also develop a Data Management Plan (DMP). The DMP (1-2 pages) describes how research data will be managed during the project and, if appropriate, made available to others after completion. There are six major topics to discuss in the DMP:

- i. *Describing the research data.* What data are needed? Are such data available? When and how will the data be acquired? Provide a description of the data you will collect or re-use, including the file types, data set size, number of expected files or sets, and content. This is also where you include information regarding the source of the data (creator and method of collection).
- ii. *Data standards.* Are there any standard formats in your field for managing or disseminating the data sets you have identified (e.g., XML, ASCII, CSV, .shp, .gdb, GeoTIFF)? Who on your team will have responsibility for ensuring that data standards are properly applied and data are properly formatted?
- iii. *Metadata standards.* Metadata is the documentation that helps make data sets re-usable. Think about what details (metadata) you or someone else would need to be able to understand and use these files. For example, you may need a readme.txt file to explain variables, structure of the files, etc. If applicable, describe how you will document your model construction, scripts and/or workflows?
- iv. *Data sharing and access.* Your data may have significant value for other researchers beyond this project, and sharing this data is part of your responsibility as a member of the scientific community. Specify the extent to which data can be reused, including any access limitations. List any proprietary software that might be needed to read the files. If you have some data that is not appropriate for sharing due to confidentiality, NDA, or disclosure risk, describe that here.

- v. *Intellectual property and re-use.* If you collected your data from an organization, do you have the right to redistribute it? If so, are there any restrictions on redistribution? If you are the creators of your data files, are you assigning a Creative Commons license to your data?
- vi. *Data archiving and preservation.* Throughout your project, you may be producing a large number of files. At the end of the project, teams must submit data used in the project (except data protected by non-disclosure agreements) and associated metadata. Not all data need to be saved. If another researcher wanted to replicate your work or re-use your data, what data and documentation would be required for them to do so? Where will your data and metadata be stored after your project is completed? Is there a subject-specific and/or open-access repository that is appropriate for your data? If you need assistance in evaluating repositories, contact **datacuration@library.ucsb.edu**.

I. 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 normally composed of 3 to 5 students, with a maximum of 5 students per project. Students are responsible for building their own teams.

B. Faculty Advisors

Each Eco-E Project is assigned one or two faculty advisors who monitor progress and provide technical assistance, expertise, and project evaluations. The faculty advisor(s) assign interim and final project grades. However, project leadership and management and the quality of the final products are strictly the students' responsibilities.

One faculty advisor will be the instructor for ESM 402A, ESM 402B and ESM 402C, which are conducted either in a classroom or lab format with all Eco-E Project teams meeting together. Through the 402-series, the instructor will monitor progress and provide feedback related to development of the team's business model. The instructor for the 402-series for the Class of 2019 is Emily Cotter (ecotter@bren.ucsb.edu), Bren School Eco-Entrepreneurship Program Manager.

Faculty advisors do not serve as project managers; their role is more that of a consultant. The 402-series instructor attends the regular weekly lab meetings of the Eco-E Project teams and is responsible for grading. Other faculty advisors, if assigned, will meet regularly with Eco-E Project teams and collaborate with the 402-series instructor on grading. The advisors may offer reactive advice, responding to activities in the group and giving advice when asked. The advisors also may give proactive advice, e.g., regarding project deficiencies and strategies for meeting anticipated 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 faculty 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 at least two external advisors—individuals from industry, government agencies, non-profits, or private citizens—who may have relevant expertise that will benefit the project. Another Bren faculty member also may be considered as an external advisor, but only one of the two or more external advisors may be drawn from the Bren faculty. Each team will be responsible for identifying external advisors and maintaining professional contact with them for the duration of the project. Teams also are responsible for scheduling 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 make accommodations to engage the person by teleconference or Skype. External advisors also should be invited by the students to attend the project's "lessons learned" presentation, defense 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 2019 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. Certain deadlines and deliverables apply to both Eco-E Projects and Group Projects. Therefore, Eco-E Project teams also will interact with the Group Project Coordinator. The Group Project Coordinator for the Class of 2019 is Casey Hankey (casey@bren.ucsb.edu), Bren School Academic Programs 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 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 Student Fellowships and Eco-E Summer Internship Fellowships. 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 a week at a designated place and time. However, it is the responsibility of the students to schedule the meetings and make necessary arrangements. **Regular team meetings should not be scheduled on Monday through Thursday at 11:00 – 12:15** because these days and times are reserved for colloquia, career talks, and faculty meetings. Advance notification of absences to the team is expected as a matter of courtesy. Additionally, all teams are expected to participate in the scheduled ESM 402A class sessions and weekly "Eco-E Lab" sessions for ESM 402B and ESM 402C. Participation in the 402-series sessions is a portion of each student's grade; missed sessions negatively affect the overall grade.

B. Scheduling Meeting Rooms

Students are responsible for scheduling their own rooms using Google Calendar for regular Eco-E Project meetings. **Three rooms are available to be directly reserved by students using Google Calendar: Bonsai (BH 4402), the Visitors Center (1410), and Manzanita (BH 4024).** Each team should designate a scheduler for the team and this person should be responsible for all calendar entries for their team.

It is imperative that the scheduler check availability before scheduling and never schedule over an existing reservation. In addition, if plans change and the room is not needed as scheduled, the reservation should be removed from Google Calendar immediately since meeting rooms are in high demand.

Google Calendar instructions can be found on the web at: <https://bren.zendesk.com/hc/en-us/articles/205802859-Students-Scheduling-rooms-using-Google-Calendar>

To schedule a room:

- Click the drop-down arrow next to the "Other Calendars" section on the left side bar in Google Calendar. Click "Browse interesting calendars." Click "more." Click "resources for ucsb.edu." Click the "bren" link, followed by the "bren-rm" link.
- Subscribe to the calendars needed;
- Click on the day and time of the meeting directly on the calendar. Use the 'edit' field to adjust meeting details. Schedule team meetings only if the room is free at the desired time (if scheduling recurring meetings, please check all dates for potential conflicts).
- Be sure to include the team's and scheduler's names in the title of the meeting so that the Bren scheduling team can easily contact the team in the event of a conflict.

Students may not make reservations on any room calendar other than these 3 designated rooms. If none of the designated student rooms are available, Eco-E Project meetings may be scheduled by Bren staff on behalf of the team in other rooms. Students may request a room by sending an email to scheduling@bren.ucsb.edu. Requests should be made at least 48 hours in advance.

Please also use scheduling@bren.ucsb.edu to reserve a conference phone if needed. A regular phone line can receive only one call at a time; you may dial out to two different

numbers. Please contact Finance Manager Bridget Mastopietro (bridget@bren.ucsb.edu) at least one day 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).

C. Conflict Resolution

The primary responsibility for intra-team 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, after faculty arbitration, a group 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. An additional resource for consultation regarding unresolved conflicts is the Assistant Dean for Academic Programs, Satie Airamé. Students also may 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. 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.

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 requires completion of the following elements to support the project.

1. Team Partnership Agreement

Each team will prepare a 1-2-page partnership agreement detailing the following:

- ▶ Names of partners
- ▶ Purpose of the partnership
- ▶ Inception date of partnership and termination date
- ▶ Team structure and management
 - A definition of each area of responsibility (e.g., web manager, data manager, financial manager, project manager, etc.)
 - An organizational chart may be useful
- ▶ General areas of responsibility for each team member
 - Duration of positions in the case of rotating roles
- ▶ Dissolution of the partnership
- ▶ Arbitration in the event of disagreement

A signed hard copy should be submitted to the Eco-E Project Coordinator.

2. Eco-E Advisory Council (EEAC) Meeting

Each team will give an overview of their Eco-E Opportunity and introduce their initial business model hypotheses 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 – Online Progress

During ESM 402A, each team will manage its business model development process online using Conceptboard and will document progress and lessons learned by submitting progress reports on GauchoSpace. For each sprint, the latest Business Model Canvas should be downloaded from Conceptboard and submitted as a PDF on GauchoSpace.

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 latest canvas on GauchoSpace.
- ▶ Submit a sprint update
 - Write a brief report summarizing what the team did during the last sprint and discuss next steps.
 - Submit sprint update on GauchoSpace.

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?

- ▶ Current Business Model Canvas
- ▶ Assumptions
- ▶ Experiments
- ▶ Results
- ▶ Lessons Learned
- ▶ Next Steps

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

5. "Lessons Learned" Presentation

At the end of spring quarter (see timeline for date), each team will present the evolution of the project's business model, to date. Each team will give a 15-minute "Lessons Learned" presentation about their environmental venture. Following the presentation, the team will participate in a Q&A session with the Eco-E Program Committee. In addition, the team will receive written feedback from the Eco-E Program Committee.

6. Website

By the end of spring quarter, each team is required to create and maintain a public website through the Bren School. The website's URL should be sent to the faculty advisor(s) and

Casey Hankey, the Group Project Coordinator, by the end of spring quarter. The following information must be accessible through this website:

- a. Names and email address for each team member, and a team email address
- b. Faculty Advisors names and emails
- c. Project name and brief description

Once the website is created, the team should continue to update the website for the duration of the project. At the end of the project, the team should archive the website. The team's website will remain on the Bren School's website so it is important to post accurate and complete information about the project. Prior to archiving the team's website, students should remove any material that will not remain accurate over time (e.g., resumes or CVs of team members).

7. 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 encourages realistic reflection on the progress and functioning of the team. The primary goal of the evaluations is to inform the faculty advisor(s) and Eco-E Project Coordinator of team dynamics and any problems that may require future intervention. 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 in Environmental Science and Management) for 4 units with their advisor in the fall quarter of the second year of study. The grade for ESM 402B will be IP ("in progress") until the student completes ESM 402C in winter quarter. When a grade is issued for ESM 402C, the same grade will be assigned for ESM 402B.

To meet the requirements of the MESM degree, students must earn a B or better in **all** the ESM 402 courses.

Students shall meet twice a week in fall quarter with (1) all team members and (2) all Eco-E Project teams and the 402-series instructor/faculty advisor (i.e., the weekly "Eco-E Lab" sessions for 402B). Students must generate the following products within the published deadlines.

1. Revised Team Partnership Agreement (if applicable)

Each team will prepare a 1-2-page revised partnership agreement, if needed. Details of what should be included in the partnership agreement are summarized in Section 4A2 above. A signed hard copy of the revised partnership agreement should be submitted to the Eco-E Project Coordinator towards the beginning of fall quarter (see timeline for exact date).

2. Technical Literature Review

Now that you have started testing your business model and refining your product/service concept, you should find out what is known about aspects of your product/service that will produce environmental benefits. You need to locate materials already written about the environmental problem that you are addressing, your proposed environmental solution and their locations or other context, including agency, industry, and consultants' reports, which will often lead you to critical datasets and useful scientific literature. You will also need to initiate a strategic search for technical literature (journals, books, electronic resources) to learn about and document the environmental impacts of your proposed solution. What is already known in general about natural and social processes involved in the environmental problem that you are addressing? How does your proposed solution address the problem? What are the lifecycle consequences? What benefits does your solution provide to the environment? Comparing your solution with other existing solutions, in what ways does your

solution better address the environmental problem? Ultimately, you need to gather data that will help you quantify the environmental benefits that will result from implementing your business model.

Beware of 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 on your computer is not the same as absorbing the content well enough to explain which material in the paper is relevant and usable for your particular problem. At the same time, you cannot afford the time to become as broadly knowledgeable about the subject as an academic researcher. So, this task of locating relevant, useful information for a single project requires strong focus and balance between obtaining directly useful information and developing the breadth of perspective which can lead to innovation. It is not simply a matter of meeting a quantitative target, such as assigned in some undergraduate courses when you were required to "refer to n articles".

More than likely, you will start your literature review with keyword searches (e.g. general concepts, species of chemical names, region or environment type) of publication databases such as the Web of Knowledge (WoK). If you are not familiar with these databases, take advantage of the training in library research techniques provided by **UCSB Research Librarian Kristen LaBonte** (klabonte@ucsb.edu). The librarian holds regular office hours in the Bren Communication Center (Bren Hall 3310) during the academic year. Each team is encouraged to schedule a meeting with the Research Librarian at least once in fall quarter to learn more about the available resources that are related to the topic of your Eco-E Project.

The Technical 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. Business model environment
- c. Current business model direction
- d. Environmental benefit. Describe how it can be quantified.
- e. Customer research methods to the extent completed. Describe anticipated methods, if not completed.
- f. Results to the extent completed. Include figures and tables to the extent completed. Describe anticipated results, if not completed.
- g. Discussion and conclusions to the extent completed.
- h. References

For each section of the outline, 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 in the winter quarter and a timeline for remaining tasks and deliverables. Keep in mind that the draft final report is due to the faculty advisor at the end of the seventh week of winter quarter. 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.

C. ESM 402C (Winter Quarter)

During winter quarter of their second year of study, students must enroll in ESM 402C (Eco-E Project in Environmental Science and Management) for 4 units with their faculty advisor. Students shall participate in at least two weekly meetings in winter quarter with (1) all team members and (2) all Eco-E Project teams and the 402-series instructor/faculty advisor (i.e., the weekly "Eco-E Lab" sessions for 402C). The following academic deliverables are due in or at the end of winter quarter (see timeline for dates):

- a. Draft final report (Week 7)
- b. Eco-E Project Defense (Weeks 8 and 9)
- c. Final report (End of winter quarter)

Teams must complete these deliverables by the end of winter quarter to the satisfaction of their faculty advisor(s). Failure to do so will result in I (incomplete) or NG (No Grade) in ESM 402B and 402C until the work is completed.

1. Final Report

The final report is a complete discussion of the Eco-E Opportunity, business model environment, business model iterations, proposed business model based on validated learning, and environmental benefit(s) to be derived from the proposed business model.

The Final Report typically includes the following:

- ▶ Title page
- ▶ Completed signature page
- ▶ Brief description of Eco-E venture (not to exceed 200 words)
- ▶ Executive summary (not to exceed 4 pages)
- ▶ Table of contents
- ▶ Eco-E Opportunity overview, including environmental problem analysis, environmental policy analysis and environmental solution analysis
- ▶ Business model environment (context, design drivers and constraints), including industry/market analysis
- ▶ Discussion of business model iterations, including customer discovery research assumptions, experiments, results and "lessons learned"
- ▶ Proposed business model and references to analogous business models
- ▶ Environmental benefit(s) to be derived from the proposed business model
- ▶ Next steps for future research
- ▶ Appendix, including technical literature review

The faculty advisor should work with the students to establish an appropriate structure for the final report. **Regardless of the format appropriate for the project results, the final report must include: a title page, completed signature page, brief description, executive summary, and table of contents.**

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 as many as 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. All members of the Eco-E Program Committee will be faculty reviewers of the project defense (see below) but 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 (including Appendices), and must be free of typographical, formatting, and other errors. Any deviations from the format guidelines must be approved by the faculty advisors prior to submission of the final report. 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 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 post the final report to their Eco-E Project website.

2. Project Defense

In weeks eight and nine of winter quarter (see timeline for exact date), each team holds a project defense. By this time, teams should have completed their draft final report and submitted it to their faculty advisor(s) for review. The defense is an opportunity for students to present their approach to testing their proposed business model, their lessons learned and next steps. The project defense is a checkpoint in the Eco-E Project process so that students receive feedback from other Bren faculty in addition to their advisors. At the time of the defense, the project is still underway and students should integrate feedback from the faculty reviewers to the extent possible. The defense is an opportunity for students to share analytical approaches and interpretations so that others can learn about their work.

For the project defense, teams will prepare a 20-25 minute presentation. The focus should be on the customer discovery research performed that validates the business model, key findings from the literature review, how the business model will generate environmental benefits and any current prototype or pilot project development. 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.

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 defense 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 advisor(s).

The entire Bren School community is invited to attend the Master's Project defense 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 defense.

D. ESM 402D (Spring Quarter)

In spring quarter of the second year of study, students must enroll in ESM 402D for 2 units with their faculty advisor. Students shall participate in meetings twice a week for the first 5 weeks of spring quarter with (1) all team members and (2) all team members and the faculty advisors. The following academic deliverables are due in spring quarter (see timeline for dates):

- a. Eco-E Project marketing collateral piece
- b. Eco-E Project poster
- c. Eco-E Project final presentation
- d. Website (revised and archived)

At the end of the fourth week of spring quarter (April 26, 2019), 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. Teams should personally invite and send the Bren School's electronic invitation to their external advisors and other professionals with whom they have interacted over the course of their project. Students may also extend invitations to personal guests.

1. Marketing Collateral Piece

Each team must prepare a marketing collateral piece that communicates the venture's marketing strategy (see Appendix VI). Pictures and diagrams are encouraged, as is the use of color.

A draft of the project brief must be submitted to the faculty advisor(s) by the second Friday in spring quarter (see timeline for dates). The faculty advisor(s) is expected to provide feedback on the project brief within one week or so. Students are expected to integrate the

feedback and submit an electronic (PDF) copy of the final project brief to the faculty advisor(s) and Eco-E Project Coordinator by the end of the third week of spring quarter.

Groups should make enough (at least 100) hard copies of their marketing piece for distribution at the Master's Project Final Presentation event. This event typically attracts approximately 400 people. Teams also should upload the final marketing collateral piece to their Eco-E Project website.

2. Project Poster

Each team must prepare a professional poster that summarizes the Eco-E Project. The poster is a visual way to communicate the Eco-E Opportunity analysis. Since the business model is considered proprietary, only the Eco-E Opportunity analysis is required.

Students should create unique poster designs, but every poster must include the Bren logo, your project title, names of all Eco-E Project team members and faculty advisor(s), and "Bren School of Environmental Science & Management, University of California, Santa Barbara" at the top of the poster. You also may include your own logo.

The Eco-E Project poster should include the following information:

- ▶ Environmental problem analysis
- ▶ Environmental policy analysis
- ▶ Environmental solutions analysis
- ▶ Core customer problem
- ▶ Proposed solution
- ▶ Proposed environmental benefits

Information regarding project posters is available on the Bren School website at: <http://www.bren.ucsb.edu/services/student/documents/PosterWorkshop2017Horst.pdf>. The poster should be at least 48 inches by 36 inches (but no larger than 72 inches by 48 inches) including borders and must be laminated so that it may be preserved for future use.

A draft of the project poster must be submitted to the faculty advisors by the first Friday in spring quarter (see timeline for dates). The faculty advisors shall provide feedback on the poster within a week. Students shall integrate the feedback and submit an electronic (PDF) copy of the final project poster to the faculty advisors, Eco-E Project Coordinator, and Group Project Coordinator by the end of the second week of spring quarter. Teams should also upload the final project poster to their Eco-E Project website.

Students should contact a poster printer at least one month before the poster will be printed. Ask the printer what format they can print, how large the poster can be, and what resolution (dpi or ppi) is needed for any photos or other graphics. Tell the printer when the digital file will be sent or dropped off and when the poster must be picked up. Posters should be printed no later than the beginning of the third week of spring quarter so that any mistakes can be corrected. Posters must be laminated for durability.

The project posters will be displayed at the Master's Project Final Presentation event on Friday of the third week of spring quarter. Casey Hankey, Group Project Coordinator, will collect all posters after the poster session. The posters will be displayed in the hallway of the third floor lab wing of Bren Hall for the subsequent year.

3. Final Presentation

Master's Project final presentations celebrate the completion of innovative, leading edge research and offer the opportunity for Bren MESM students 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 2nd year MESM students are expected to participate in the final presentations. Participants are advised to dress in business attire.

Each team has 40 minutes, which includes 20-25 minutes for the presentation and 15-20 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 defense 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 Final Presentations program. A brief description, along with the project title, team members, advisor(s), and acknowledgements must be delivered electronically to Casey Hankey, Group Project Coordinator, the end of the winter quarter (see timeline for date).

4. Website

The team should continue to update their website during the project. The website should be well designed, accurate, and simple to navigate. By the end of the project, the website should describe the Eco-E Opportunity, as well as team members, advisor(s) and external advisors. The team should remove any information from the website that will not remain accurate (e.g., resumes or CVs). The final website will be converted to .pdf file, which will be linked to the Bren School website in perpetuity.

5. PROJECT EVALUATION

A. Faculty Evaluation of Students

Students must take all of ESM 402 courses (ESM 402A, ESM 402B, ESM 402C and ESM 402D) for grades. Students will receive a letter grade for ESM 402A from the instructor. Students will receive an "IP" (In Progress) grade for ESM 402B; a letter grade will be assigned for ESM 402C at the end of winter quarter. That letter grade automatically applies to ESM 402B. Students will receive a letter grade for ESM 402D from the faculty advisor(s). Each student in the team receives a separate grade. 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 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. Relationships. Formation of working relationships with industry experts and environmental professionals outside of the Bren School. Students will have to identify sources of information, outside consultants, and/or experts who can provide assistance to the Eco-E Project.
6. Resourcefulness. Throughout the project, students shall demonstrate initiative in finding information, performing customer research, 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. Team members shall demonstrate the highest level of professionalism in communications with each other, their faculty advisor, external advisors and other stakeholders. All team members, particularly Project Managers, are expected to communicate concerns and issues with their faculty advisor 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 advisor(s) and submit it to Casey Hankey, Group Project Coordinator (see Appendix I). Casey Hankey, Group Project Coordinator, compiles all comments for anonymity and archives them until 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 activate the team's account.

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

- a. Phone calls
- b. Final poster (laminated)
- c. Marketing collateral piece
- d. Printed copy of final poster (if requested by faculty advisor)

In addition to the above costs, each team must consider appropriate additional expenses such as travel, software, 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

Please note: There are 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. 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) advance 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 absolutely 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).

**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 Eco-E Projects. The Business Officer is Kim Fugate (finance@bren.ucsb.edu; 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; 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 Eco-E Projects. The Personnel/Payroll & Travel Coordinator may be reached at travel@bren.ucsb.edu or 805-893-6114 in Bren Hall 2522.

- The Bren School's Purchasing Coordinator processes purchase orders and reimbursements for items associated with Eco-E Projects. The Purchasing Coordinator is Briny Litchfield (purchasing@bren.ucsb.edu; briny@bren.ucsb.edu); Bren Hall 2522; 805-893-6114.
- The Bren School's Resource Coordinator processes parking permit requests and paperwork related to travel. The Resource Coordinator is Dee White (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, Casey Hankey, 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 sent to the Bren School's Finance Team and an informational/training meeting will be scheduled to go over 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 in order to avoid exceeding the project budget.

C. Printing

Each team receives up to \$200 of printing on *Bren Hall* printers. These funds CANNOT be used for the printing of final posters or marketing collateral; they are for use on Bren Hall printers only. 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. 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. 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 Dee White (dee@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 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. Eco-E Project Financial Managers should understand purchasing policies and procedures (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.

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. 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. Eco-E Projects may not be funded by an outside client. In order to compete in most new venture competitions and business plan challenges, all ideas and concepts set forth in the business model must be the original work of the team members. Funding by an outside client may jeopardize the team's eligibility to compete.

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. 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.

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 Outreach 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 an Outreach Manager (OM). The Outreach Manager will have primary responsibility for developing and maintaining the team's website (see section 8L for more information). The Outreach Manager also will manage public communications, such as educational materials about the project, a public blog, etc., on behalf of the team.

B. Project Alias

Each team chooses a short alias for their project. The alias is used to identify the project's online artifacts (directories, mailing lists, etc.).

C. Team Email List

Teams are responsible for creating their own email lists; they may create as many as needed. Bren requires all teams to make at least one email list, titled with their alias so the email is gp-alias@bren.ucsb.edu. This will be used as a contact email for the entire team

and must be accessible to Bren staff and outside parties. Teams can also make an internal list for only team members and/or their advisor 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\GroupProjects2019GPSHARE. 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. The Bren School currently supports EndNote bibliographic software, which can be installed upon request on an Eco-E Project computer. Some teams choose to use an online citation manager; basic accounts are often free.

J. Public Website (Required)

Each team is required to create a public website. Students may select the program in which to design the website (e.g., Weebly, Wix, Dreamweaver, etc.). A web design workshop will be offered in the spring quarter of the first year of study to provide instruction on website design, if needed, for Outreach Managers.

The Outreach Manager is responsible for attending training workshops, designing and maintaining the team's website, and posting information in a timely manner. The Outreach Manager must verify all links on the team's web pages when editing or adding information to them. In the spring quarter of the 2nd year of study, the Outreach Manager must conduct an assessment of their site, complete revisions, and archive the site.

Functioning website links must be sent to the Group Project Coordinator by the end of spring quarter of the first year of study (see timeline for date).

Appendix I

Evaluations

Peer & Self Evaluations (completed quarterly), and the Faculty Evaluation (completed at the end of Winter Quarter) are available online at:

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 Survey Monkey. 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, and sent to advisors.

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., the preface, dedication, acknowledgements, etc.)
- The main body of text (including charts or other inserted matter)
- The back matter (e.g., the 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 advisor(s) 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 The University of Chicago Manual of Style. 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 an alphabetical listing (recommended) of the team members and faculty advisor(s). In addition, the title page must have the following:

- 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 members and faculty advisor(s)
- Date (the month and year the project 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.

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. The typed name of the person signing must appear immediately to the right of or below the signature.

If the participants do not have a concern about privacy, the signed signature page may be scanned and displayed in the final report, immediately following the title page.

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 brief description of the new venture (i.e., tagline). 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.

Brief Description

A brief description is required. It should provide a brief synopsis of the Eco-E venture and be succinct (200 words).

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.

The brief description, table of contents, and other preliminary pages 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 for the brief description; see below for additional information on pagination and placement of page numbers.

The brief description and table of contents should be placed following any optional preliminary pages (i.e., acknowledgements).

Executive Summary

The executive summary has more detail than the brief description and should be no longer than four pages. Since most people will read the summary rather than the entire report, it should include, at a minimum, the compelling Eco-E opportunity (core customer-problem-environment-solution) and concise description of the proposed business model. **The executive summary should be text only; do not include graphs or photos.**

Legibility and appearance

The final report must be produced using a font that is highly legible and dark enough to print clearly.

Dimensions

The final report must be formatted to letter-size (8.5 x 11 inches). For information on handling oversize 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 brief description.

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 (or when the faculty advisors approve the final report). Please contact the Group Project Coordinator with any issues or questions about these guidelines.

The Eco-E 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

CHECKLIST AREA	BREN REQUIREMENT
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 on approval and title page.
Brief Description	Not to exceed 200 words
Executive Summary	Not to exceed 4 pages
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)

DATE

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 advisor 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 principal 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's 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

Conference Calls	\$30
Marketing Collateral	\$200
Software	\$100
Presentation expenses	\$50
Final poster production and lamination	\$240
Conference attendance	\$360
Administrative supplies	\$20
Business cards	\$60
Travel / Site visits	\$240
TOTAL	\$1,300
Printing*	\$200

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

Appendix VI

Eco-E Project Marketing Collateral Piece Guidelines

The importance of clearly articulating your customer's need and communicating the value of your new venture is paramount. One of the most important phases occurs at the end: Preparing your final report, final presentation, poster and marketing collateral piece. The marketing collateral piece is particularly important since it represents messaging to your customer.

Content of the Marketing Collateral Piece

The marketing collateral piece is intended to be a form of marketing communication aimed at your customer(s). It is important that the piece be polished, eye-catching, substantive, technically impressive and easy to read at multiple levels (a skim, a casual read, a careful read).

Use graphics, tables, summary boxes, headings and whatever works to convey your messages. Color is appropriate, although keep in mind that some people may print the brief in black and white; color must be readable and intelligible when rendered in black and white.

A successful marketing collateral piece follows three overarching design principles:

- Fundamentally sound: contains clear messaging of benefits (benefits over features), targets a specific customer segment and clearly articulates customer pain points.
- Educational: addresses a new way for customers to think about a business challenge they are experiencing or leads the customer to desire your solution to solve their challenges.
- Advocate friendly: easy to share and targets advocates who may influence the purchase decision.

Technical Guidelines

The length of the marketing collateral piece is two pages, 8.5" x 11." Print the piece on a single piece of paper (back-to-back). For text, use single spacing. It is recommended to use 11 point Garamond type (or something comparable), 0.75 inch margins, flush left and right, and 0.5 inch between any columns. Section headings may be in larger type.

You may change the template for the marketing collateral piece. Please submit your marketing collateral piece to the Eco-E Project Coordinator for review before the due date (see timeline overview).