UC SANTA BARBARA
Bren School of Environmental Science & Management

Group Project Guidelines

MESM Class of 2026

INTRODUCTION

These guidelines define the Bren School's expectations for Master's Group Projects and explain the process, timeline, and required deliverables.

Master's Group Projects are a unique and important component of the Bren School's approach to environmental science and management. The School developed the Group Project process in direct response to prospective employer requests that Bren graduates possess "real world" skills. These skills include excellent academic training as well as the ability to successfully work and communicate as a member of a team and manage a professional project. The Group Project provides students an opportunity to work together to design, conduct, and present professional interdisciplinary environmental research.

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

Students who pursue Group Projects collaborate with outside clients, which may be from industry, government, or non-government organizations. Clients must present a problem that can be addressed and solved by the Group Project.

All Group Projects begin in the 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 by all parties;
- limited client involvement to allow students to develop their own ideas and approaches;
- healthy and professional communication and rapport among all parties; and
- the ability of students to choose courses of action, make mistakes, and learn from those experiences.

GROUP PROJECT TIMELINE OVERVIEW

Below are the key deadlines for this year's Group Projects. Note that faculty advisors or clients may request additional milestones and may set internal deadlines for drafts or other materials in addition to the deadlines listed here.

Spring Quarter 2025	
Tues, Apr 1 (Week 1)	• Attend Group Project Kickoff Workshop (11 am - 12 pm)
Wed, Apr 2 (Week 1)	• Attend Client Relations Workshop (11 am - 12 pm) and maintain clear, open, and frequent communication with your client throughout the project.

By Fri, Apr 4 (Week 1)	• Get to know the members of your Group Project.
	• Determine group roles:
	  ○ Project Manager (PM)
	  ○ Financial Manager (FM)
	  ○ Data/Computing Manager (DM)
	  ○ Communication Manager (CM)
	  ○ Internship Coordinator (IC), if applicable
	• Report alias and PM, FM, DM, CM, IC to Group Projects Team.

By Fri, Apr 4 (Week 1)	• Schedule regular weekly meetings and meet with faculty advisor(s).
	• Discuss:
	  ○ Expectations for students
	  ○ Expectations for faculty advisor(s)
	  ○ Project objectives
	  ○ What is feasible to complete within one year
	  ○ Level of academic performance needed to satisfy requirements of MESM program

By Fri, Apr 11 (Week 2)	• Hold scoping meeting with faculty advisor and client; • Discuss project objectives, scope, deliverables, group management structure, and when and how client would like to engage with group; • Discuss potential external advisory committee members.

Fri, April 18 (Week 3)	• Submit short project description (1-3 paragraphs) to Group Projects Team for Bren website.
	• Submit preliminary work plan to faculty advisor(s)
	  ○ Title page (Appendix III)
	  ○ Short project description (1-3 paragraphs)
	  ○ Objectives
	  ○ Significance of the project
	  ○ Preliminary technical approach to solving the problem
	  ○ Milestones

	○ Personnel Management Plan
Fri, April 25 (Week 4)	• Attend Master's Project Final Presentations for MESM Class of 2025.
By Fri, May 9 (Week 6)	• Invite at least two people to serve as external advisors (one external advisor must be a member of UC's Academic Senate).
Fri, May 16 (Week 7)	• Submit complete draft work plan to faculty advisor(s) a. Title page (Appendix III) b. Short project description (1-3 paragraphs) c. Objectives d. Significance of the project e. Preliminary technical approach to solving the problem f. Milestones g. Personnel Management Plan h. Background and literature review i. Data Management Plan j. Deliverables k. Budget and budget justification l. References cited
Prior to spring review meeting	• Integrate advisor's feedback into work plan prior to spring review meeting. • Send revised work plan to faculty advisor, client, and external advisors
By Fri, June 6 (Week 10)	• Host spring work plan review meeting with faculty advisor(s), client, and external advisors by this date; • Submit 1-page summary of work plan review meeting to faculty advisor(s); • Following the meeting, integrate feedback into the final work plan; • Complete Self/Peer Evaluation via Qualtrics (link provided separately)
By Fri, June 13 (Finals Week)	• Submit final work plan to faculty advisor(s), client, external advisor, and Group Projects Coordinator

Fall Quarter 2025	
By Fri, Oct 3 (Week 1)	• Schedule regular weekly meetings and meet with faculty advisor(s). • Continue working on data acquisition and analysis, documentation of methods and results, interpretation of

	results, and production of project deliverables,
Tues, Oct 14 (Week 3)	• Participate in MESM 2026 Group Project and Eco-E Project Flash Talks
By Fri, Oct 31 (Week 5)	• Submit an interim report to faculty advisor(s) describing the group's progress toward project objectives. Focus on data, methods, analyses, and results, keeping in mind these sections will be incorporated into the Final Paper.
By Wed, Nov 26 (Week 9)	• Host fall review meeting with faculty advisor(s), client, and external advisors. • Submit 1-page summary of fall review meeting to faculty advisor(s).
Fri, Dec 5 (Week 10)	• Complete Self/Peer Evaluation via Qualtrics (link provided separately)
Fri, Dec 12 (Finals Week)	• Submit draft outline of Final Report sections to faculty advisor(s). Sections from the work plan are marked with an asterisk. Provide information on which sections are partially or fully completed and which sections need more work. ○ *Title page (Appendix III) ○ *Project objectives ○ *Significance of the project ○ *Background and literature review ○ Data and Methods ○ Analyses and Results ○ *References cited

Winter Quarter 2026	
By Fri, Jan 9 (Week 1)	• Schedule regular weekly meetings and meet with faculty advisor(s).
Fri, Jan 23 (Week 3)	• Submit preliminary draft Final Report to faculty advisor(s) including revised sections of data, methods, analyses and results.
Fri, Jan 30 (Week 4)	• Master's Project Faculty Reviews
Weeks 5-7	• Incorporate feedback from faculty reviewers and advisor(s) into Final Report.
Fri, Feb 20 (Week 7)	• Submit revised draft Final Report due to faculty advisor(s) ○ Title page (Appendix III) ○ Project objectives

	○ Significance of the project ○ Background and literature review ○ Data and Methods ○ Results ○ Conclusions ○ *References cited
Weeks 8-11	● Incorporate faculty advisor(s) feedback into Final Report
Fri, Mar 13 (Week 10)	● Complete Self/Peer Evaluation via Qualtrics (link provided separately)
Fri, Mar 20 (Finals Week)	● Final Report (.pdf version) due to faculty advisors and Bren Projects Team

Spring Quarter 2026	
Fri, Apr 10 (Week 2)	● Draft Executive Summary due to faculty advisor(s) ● Submit project Abstract and Acknowledgements to Group Projects Team for Bren website ● Consult with Library Research Data Services (RDS) on data/metadata and code deposit requirements and procedures
1-2 weeks before Final Presentation	● Take group photo w/ faculty advisor(s) to use as the first slide in the Final Presentation; ● Submit draft Final Presentation to faculty advisor(s) for review
Fri, Apr 17 (Week 3)	● Final Executive Summary (.pdf version) due to faculty advisor(s) and Group Projects Team
Thurs, Apr 23 by 5 pm (Week 4)	● Submit Final Presentation (slides) due to Senior Events Manager
Fri, Apr 24 (Week 4)	● Master's Project Final Presentations
Fri, May 8 (Week 6)	● Submit Data/Metadata ● Complete Self/Peer Evaluation via Qualtrics (link provided separately) ● Submit faculty advisor(s) evaluation to Group Projects Team

1. GENERAL INFORMATION

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A. Group Project Timeline

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

B. Academic Units and Grading

Students must register for ESM 401A, 401B, 401C, and 401D in spring, fall, winter, and spring, respectively, for a total of 14 units. The group's faculty advisor(s) grades all ESM 401 courses and the grades will be assigned at the end of their respective quarters.

Students must achieve a grade of C or better on their Group 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 end of each quarter's last instructional day, students must fill out and submit a Group Project Peer and Self Evaluation Form via Qualtrics. These evaluations will be considered by the faculty advisor when grades are assigned. This form can be found on the Bren School website at the bottom of the Academic Resources for Current Students page under Master's Projects.

C. Student Time Commitment

Students should expect to devote **at least 10-12 hours per week** to their Group Project, although more time can be expected for some tasks. Group Project work should be evenly allocated over the 3.5 quarters to avoid excess workload at the end of the project. Although there are no set class periods for Group Projects, students should treat the project as though it is another 4-unit course each quarter.

D. Summer Group Project Work

Some students may participate in a summer internship associated with the Group Project. The client may want students in the group to apply for the internship(s). In this case, students who are interested in the internship(s) should submit the necessary materials, and the client will either choose the best-suited student(s) for the position or delegate the intern selection to the group. In that case, the students may want to select a student to be the Internship Coordinator (IC). Working together, the students will create a process to select the intern. This should be done early in Spring Quarter so that students who are not selected as the Group Project intern have time to search for other internship opportunities.

The simplest way for a client to support an intern is to pay the intern directly. If a client is unable to pay an intern directly, please contact the Bren School's Finance Manager for further guidance as soon as possible.

Students not involved in a Group Project-related internship may continue some level of work on their projects during the summer, as determined by the group and faculty advisor.

E. Deliverables

The major deliverables for the Group Project are:

- Work Plan
- Faculty Review presentation
- Final Report
- Executive Summary
- Final Presentation
- Data, Metadata, and Code
- Optional (not graded): Groups are encouraged to develop and create a media/communication product of their choice

All deliverables should provide an honest assessment of the state of science, communicating both pros and cons of each individual issue rather than advocating for a specific outcome or point of view. Students should acquire and review sufficient data and information needed to conduct objective research. Students should present their data, results, and recommendations with the information needed to convince the client, audience, and readers of the Final Report that all relevant evidence has been explored and analyzed before making conclusions or recommendations. Analyze the pros and cons so the audience will understand and be convinced that the conclusions are justified. For example, a literature review can explain which results are inconsistent and why one finding may be stronger than another. The Final Report and Final Presentation should demonstrate that students understand both sides of each issue and the scientific basis for each choice or assumption.

F. Authorship/Ownership

Each member of the group is an equal owner of the intellectual property of the project. Frequently, groups allocate tasks among members to advance the project; one or several individuals may invest more time in one aspect of the project than others. However, each member of the group ultimately contributes to the body of work that emerges from a Group Project. Therefore, every required paper, executive summary, presentation, etc., that is produced by the group must list every member as an author.

Groups are encouraged, but not required, to present their Group 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. Groups also may want to publish results in a peer-reviewed journal. Groups may collectively develop criteria for authorship of these supplemental materials (e.g., 2-unit independent study with advisor) but all members of the group must agree to these criteria. A group member may choose not to be included as a co-author on a publication. However, all group members must be offered the opportunity to make their own decisions about their authorship. Even after the project has ended, if a group member adapts the deliverables for presentation at a meeting or submission to a journal, every group member should be listed as a co-author. Groups also may include faculty advisors or others who contributed substantially to the research as co-authors.

G. Data Distribution

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

H. Publishing

If a group would like to publish its work, group members must discuss this with their advisor. Faculty advisors are experts in peer-reviewed publications, 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, the client, and the Bren School. Note that it often takes a prolonged period (months to years) to get a paper published.

I. Use of Human Subjects

Faculty and students who engage in research involving human subjects (e.g., a survey of people) must complete the Human Subjects training, submit a survey tool for review and approval, and obtain approval from UCSB's Human Subjects Committee (HSC) prior to conducting research. The group's faculty advisor also will need to complete the Human Subjects training and will submit the students' survey tool on behalf of their students.

To qualify as "human subjects" research as defined by the Common Rule, activities must fall under both definitions of (1) research and (2) human subjects under 45 CFR 46.102 (see definitions below). If the activities fit the definitions of (1) research and (2) human subjects, then the activities are considered human subjects research, and an application will need to be submitted to the HSC for review and approval (or exemption) before research can begin.

45 CFR 46.102 Definitions:

- "Research" means a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge. Activities that meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program that is considered research for other purposes. For example, some demonstration and service programs may include research activities.
- "Human subject" means a living individual about whom an investigator (whether professional or student) conducting research obtains:
    - Data through intervention or interaction with the individual, or
    - Identifiable private information.
        - Intervention includes both physical procedures by which data are gathered (for example, venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes.
        - Interaction includes communication or interpersonal contact between the investigator and the subject.
        - Private information includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information that has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made

public (for example, a medical record). Private information must be individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information) for obtaining the information to constitute research involving human subjects.

In planning to use human subjects, please review the UCSB Office of Research website at https://www.research.ucsb.edu/human-subjects/about. To proceed with human subjects research, students must understand and abide by the University policies and procedures governing human subject research. It takes time to complete Human Subjects training, submit a protocol (methods and interview questions), and obtain approval from the HSC. Students conducting human subjects research must plan well in advance. The faculty advisor also must complete Human Subjects training and submit the protocol on behalf of the student(s). Under no circumstances may human subjects be used if prior approval has not been obtained.

2. COMPOSITION OF THE GROUP PROJECTS

A. Group Members

Each group is composed of 4 to 5 students. Students vote on projects by assigning preference points. Group assignments are then determined by a computer algorithm that uses these points to optimize overall student preferences for different projects. Not all students will be assigned to their preferred project. However, almost all students are assigned to their first or second choice, while a few students may be assigned to their third or fourth choice. The experience of completing a Group Project is generally comparable across groups regardless of the project topic.

B. Faculty Advisors

Each Group Project is assigned one or two Bren faculty advisor(s). Groups must also obtain the counsel of two or more external advisors, one of which must be another faculty member appointed by the Academic Senate at UCSB or another UC. Groups commonly invite a second Bren faculty member to serve as an external advisor, but it is also permissible to invite a UC Senate faculty member in another department at UCSB or another UC. Once groups have two faculty advisors, then their other external advisor(s) can be any individual from government agencies, industry, non-governmental organizations, universities, or private citizens who may be interested in the project. Only the primary (pre-assigned) Bren faculty advisor needs to sign the final report and assign grades. To view a searchable list of all

Senate-appointed faculty members for each department at UCSB, visit https://senate.ucsb.edu/about/members.

The primary faculty advisor(s) typically meets weekly with students during the academic year, monitors progress, provides technical assistance, expertise, project evaluations, and assigns grades. Bren faculty and other experts on the external advisory committee are expected to review the group's progress at least once per quarter during review meetings, but they are not expected to read and provide detailed feedback on the group'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 weekly meetings with the group during the academic year and are responsible for grading. Advisors may offer reactive advice, respond to activities in the group, and provide guidance when asked. The advisors also may give proactive advice regarding deficiencies and deadlines. Students must understand the role of the advisors, recognizing their significance while understanding their limitations in directing the project. Each faculty advisor has a unique approach. Students should expect variability in engagement, expectations, and feedback from one advisor to the next. During the first quarter, each group should clarify the expected level of interaction with their advisors. Groups should include this information in their work plan.

C. External Advisors

Interacting and networking with the professional community are critical components of the Group Project process. Groups must obtain the counsel of two or more external advisors, individuals from universities, government agencies, industry, non-governmental organizations, or private citizens who may be interested in the project, its data, or its 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 group, then the group must select at least one other member of the UC Academic Senate for the external advisory committee, as described previously under Faculty Advisors. However, only one of the two or more external advisors may be drawn from the Bren faculty. Other external advisors may be invited from government agencies, industry, non-governmental organizations, and other relevant institutions.

Each group will be responsible for identifying external advisors and maintaining professional contact with them for the duration of the project. The external advisors must be invited to meet, together with faculty advisors, clients, and group members, once in Spring Quarter of the first year of study and once in Fall Quarter of the second year of study. If an external advisor is not able to attend a meeting in person, the group should engage the person by teleconference or Zoom. External advisors do not need to review the entire final report, although the group 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 group should be prepared with an agenda and specific questions, so the meeting time is valuable for all parties.

D. Clients

Clients supply the environmental problems (and often relevant data) that are central to Group Projects. Clients may submit Group Project proposals on their own or they may work with students and/or faculty to develop and submit proposals. In the proposal writing phase, students may approach an individual from an outside organization (including a business, government or non-governmental organization, university, etc.) to investigate whether or not the organization would like to serve as a client for a Group Project. Effective clients will be engaged in the project, knowledgeable about its topics, and serve as a resource for students, while not constraining the group's approach or the project's outcome. Some clients may have a clear idea of the problem and what types of solutions are needed. Other clients may be more flexible about the types of solutions needed and they may prefer that students provide direction for how to solve the problem. Students should maintain frequent, professional communication with clients throughout the project. In particular, students must engage the client early in the Spring Quarter of the first year of study, so that all parties clearly understand the project objectives, deliverables, and timeline. The clients must be invited to meet together with faculty, external advisors, and group members once during Spring Quarter of the first year of study and once during Fall Quarter of the second year of study. If an in-person meeting consisting of the group, faculty advisor, client, and external advisors is not possible, then students should engage the client through teleconference or Zoom. The students should invite the clients to attend the group's Faculty Review in Winter Quarter and Final Presentation in Spring Quarter.

E. Bren Projects Team

The Bren Projects Team is a team of Bren staff members who assist students, faculty advisors, and the Group Project Committee in facilitating the Group Project process. Any questions or concerns regarding a Group Project should be addressed to the Bren Projects Team by contacting projects@bren.ucsb.edu.

3. PROJECT MANAGEMENT

A. Group Meetings

Groups are encouraged to meet as often as necessary, but all groups must meet at least twice a week at a designated place and time. Regular group 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 master's project workshops. The primary faculty advisor(s) should participate in one of the weekly meetings. However, it is the responsibility of the students, not the advisor(s), to schedule the meetings and meeting rooms, and make necessary arrangements. Advance notification of absences to the group is expected as a matter of courtesy. Participation in group meetings is a portion of each student's grade; missed meetings may negatively affect the overall grade.

B. Scheduling Meeting Rooms

Students are responsible for scheduling their own rooms for regular Group Project meetings. When Bren Hall is open, students may reserve the Visitors Center (BH 1410), Bonsai (BH 4327), Manzanita (BH 4329), Oak (BH 1520), Sycamore (BH 1510), Maple (BH 3016), and Pine (BH 3526) rooms via Robin Powered scheduling software. You will be asked to log in to the booking dashboard using your @ucsb.edu email address. When self-booking Bren rooms for Group Project meetings, please enter a title that includes the GP name and the word Bren. Including the word Bren ensures your reservation is a Bren reservation at a glance, as non-Bren people used our system and rooms in the past. Self-booking online allows up to 14 days in advance only.

If students wish to create a repeating meeting beyond 14 days in advance, they must self-book the first meeting iteration, and then submit a Bren Hall Room Request Form that goes to scheduling@bren.ucsb.edu, which will extend the booking for the quarter. Students should include the reason for the room reservation, the number of meeting participants, the audio-visual or other equipment needed, and the dates and times of all requested meetings, as well as any other relevant information. Requests to scheduling@bren.ucsb.edu 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; however, conference phones may dial out to two different numbers. Please contact Finance Manager Bridget Mastopietro (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).

C. Conflict Resolution

The primary responsibility for intra-group conflict resolution lies with the group members. The faculty advisor(s) should help resolve any issues that cannot be adequately addressed by the group members. If a group is still unable to resolve a conflict after faculty arbitration, the group may seek assistance from the Bren Projects Team or the Chair of the Group Project Committee, who will consult with the Group Project 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 group, it is critical that they maintain <u>written</u> documentation of the problem and attempted solutions. For example, if one member of a group is not doing their share of work or not providing timely products or products of adequate quality, the other group members must document the <u>dates</u> of specific incidents and what <u>efforts</u> 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 advisor(s). Because of federal privacy laws, students may not be informed of specific interventions or disciplinary actions taken against other students; however, this does not mean the problem was not acted upon by the administration.

Conflict resolution process. Some of the tasks undertaken by the group may turn out to be unexpectedly difficult or even impossible. A group member who encounters such a difficulty must communicate the problem to other members promptly and explicitly. The group might then share ideas or seek guidance from the faculty advisor, or re-focus the project if the task is beyond the capacities of the group. Prompt and continuous communication will help the group overcome such difficulties and avoid late surprises or disappointment. Other difficulties can arise because of uneven contributions among the members. This dynamic can lead to feelings of exclusion or that one or more members are not pulling their weight. Describe steps that the group will take if a member does not sufficiently contribute. It is better to decide on ways of dealing with such problems before they arise.

To understand different working styles and minimize the likelihood of conflict, the group should discuss the following issues, internally and with the advisor:

- How do you like to receive negative feedback?
- How do you like to receive positive feedback, and how often do you like to receive it?
- What steps do you take to ensure your work is high quality?

- How would you like a teammate to address you if they thought your work was not up to the team's quality standard?
- How would you like a teammate to address you if they thought you were crossing the boundary of their role's responsibilities?
- How do you like a group to make decisions? How would you like a teammate to address you if you made a decision that they wanted to weigh in on?

The starting point for managing conflict is for the group to assume initial responsibility for the problem. The group's management plan should first focus on assisting or motivating a group member having trouble, realizing that problems might arise for anyone. Methods for dealing with problems include peer review, and/or division or re-negotiation of responsibilities. If a resolution cannot be reached using these tools within a reasonable time (no longer than a month), the group should engage the faculty advisor or the Bren Projects Team. If a group member consistently fails to contribute at the expected level, the Project Manager should meet individually with the faculty advisor(s) and/or the Bren Projects Team to discuss the problem and possible solutions. If a serious problem emerges, Project Managers and other group members should feel free to schedule individual meetings, as needed with their faculty advisor(s) and/or Bren Projects Team. If it is not possible to resolve the problem with group and faculty advisor intervention, then it may be necessary to schedule a facilitated group meeting with the Assistant Dean or campus ombuds person.

Common GP conflict scenarios include the following:

- A student is contributing minimally or not at all to the project, forcing others to pick up the slack
- A student is not completing assigned tasks by agreed deadlines
- A student is consistently late or missing meetings
- The quality of a student's work does not meet team expectations
- A student is not fulfilling their assigned role
- A student is completing tasks that are within another team member's responsibilities
- Unprofessional communication styles, including rude comments, dismissive body language, refusal to communicate, lack of inclusivity, etc.
- Team members are unable to agree on a major aspect of the project (goals, deliverables, timeline, methodology)

Being aware of these issues is important, and talking about them early on will avoid having a major conflict.

4. PROJECT DELIVERABLES

Refer to the timeline overview for a summary of Group Project deadlines and deliverables.

Students must pass all ESM 401 courses with a C or better to be eligible for the MESM degree. Students must be actively involved with their group throughout the year-long project to receive a passing grade.

A. ESM 401A (Spring Quarter, First Year of Study)

MESM students begin Group Projects in the Spring Quarter of their first year of study and are required to register for ESM 401A Master's Group Project (4 units) with their assigned faculty advisor(s).

ESM 401A does not have a regular class schedule. Instead, students are required to attend relevant workshops and schedule two weekly meetings with (1) all group members and (2) all group members and primary faculty advisor(s).

ESM 401A requires the completion of the following elements:

1. Scoping of the Project

As part of ESM 401A, each group transforms the project's initial proposal into a tractable work plan. Students should immediately begin investigating the problem presented in the proposal.

Students must schedule regular weekly meetings with their faculty advisor(s) each quarter. The first meeting with the faculty advisor(s) should be scheduled during the first week of Spring Quarter. The purpose of the first meeting is to discuss the focus of the project, what is feasible to complete within one year, and the level of academic performance needed to satisfy the requirements of the MESM program. The group and advisors should read the initial proposal critically before the meeting and be prepared to discuss expectations for each other. They should also prepare for a scoping meeting with the client during week 2.

Subsequent weekly meetings with the faculty advisor are intended to provide guidance and feedback as the project develops. Attention should be paid early in Spring Quarter to brainstorming approaches, researching methods, and planning pilot studies. Later meetings in Spring Quarter should involve reporting on methods researched and the results and challenges of pilot work. Weekly meetings with the faculty advisor will continue for the duration of the project during the academic year.

All members of a group are expected to contribute to all project deliverables. Roles should be assigned to organize the group. While each role has specific responsibilities, all members of the group should participate to advance the project objectives and deliverables. Each group is required to assign the roles of a project manager (PM), data/computing manager (DM), financial manager (FM), and communication manager (CM). If the group has one or more summer internships, the group also may choose to assign an Internship Coordinator (IC). The group must confirm the assigned roles with the Group Projects Team by the end of Week 1 of Spring Quarter. There are specific workshops required for each role. Attendance at these workshops is mandatory for the individuals holding the respective role. The schedule of these special workshops will be announced in Spring Quarter.

A suggested approach is assigning roles to invite the group discuss the following topics:

- What career do you plan to pursue post-Bren?
- What outcomes from this project do you hope to get that will help you get there?
- What hard skills do you hope to gain from the project?
- What soft skills do you hope to gain from the project?
- Which aspect of the project are you most excited about?

Students should schedule a meeting with the client during the second week of Spring Quarter. A critical element of a successful Group Project is clear, frequent, and open communication with the client. Clients may be involved with their Group Projects to a greater or lesser degree, depending on their availability, expertise, and desired level of engagement. Central to deciding what the project will include (and what it will *not* include) is a scoping meeting with the group members, client, and faculty advisor(s). The purpose of the meeting with the client and faculty member is to develop a shared understanding of the project objectives. If any objectives in the original proposal are not feasible, the faculty advisor and students will discuss this with the client and develop an understanding of how the group plans to proceed.

The meeting(s) with the faculty advisor and client should result in a clear agreement about what is possible and not possible given the available time, resources, data, client support, and faculty and student capabilities. Following the meetings, students should document the project objectives and produce a short list of deliverables.

Students, faculty advisors, and the client also should discuss who would be appropriate external advisors. Students are required to engage two or more external advisors for each Group Project. If the group has one primary faculty advisor, then one of the external committee members must be another member of the UC Academic Senate either at UCSB or another UC campus. As students develop the work plan, they should consider who they would like to engage as external advisors and invite at least two people to serve in this capacity by week 6 of Spring Quarter.

2. Work Plan

The project work plan is a concrete and realistic statement of what the group will do to solve the assigned problem for the client. The construction and articulation of this work plan are significant parts of the work required to solve the problem. The work plan should be limited to 20 single-spaced pages. This page limit does not include the title page, budget, and justification, or references cited. A draft of the preliminary work plan is submitted to the group's faculty advisor(s) at the end of the third week of Spring Quarter. The revised work plan is due to the faculty advisor(s), client, and external advisors at least one week before the work plan review meeting in Spring Quarter. The final work plan is due to the faculty advisor(s), client, external advisors, and Bren Projects Team on the last day of Spring Quarter.

The group will develop a preliminary Work Plan, focused on the following elements, after discussions during the first two weeks:

Work Plan Part 1 (Draft due Friday of Week 3)

a. Title page (Appendix III)
b. Short project description (1-3 paragraphs)
c. Objectives
d. Significance of the project
e. Preliminary technical approach to solving the problem
f. Milestones
g. Personnel Management Plan

The preliminary Work Plan is due by the end of Week 3 to the advisor, who will review it and return it to the students one week later with comments.

Weeks 4-7 are used to perform an in-depth literature review, define the data needs and a Data Management Plan, and refine the approach for solving the problem. You will also develop a budget and a budget justification. The literature should be adequately cited, using Zotero or similar reference management tool.

The preliminary Work Plan is due by the end of Week 7 to the advisor, who will review it and return it to the students one week later with comments. It will then be sent to external advisors and client for comments, one week before an oral presentation to them.

The final work plan must include the following components:

Work Plan Part 1 (Draft due Friday of Week 3)

a. Title page (Appendix III)
b. Short project description (1-3 paragraphs)
c. Objectives
d. Significance of the project
e. Technical approach to solving the problem
f. Milestones
g. Personnel Management Plan

Work Plan Part 2 (Draft due Friday of Week 7)

h. Background and literature review
i. Data Management Plan
j. Deliverables
k. Budget (see Section 6 and examples in Appendix V) and budget justification
l. References cited

Description of Work Plan Part 1 components:

(a) Title page (See formatting guidelines in Appendix III)

The title page must include the following information:

- Title (no more than 10-12 words recommended; may differ from original proposal title)
- Names of group participants (alphabetical order recommended)
- Name of faculty advisor(s)
- Bren School of Environmental Science & Management, University of California, Santa Barbara
- Date (month and year of completion of final paper, i.e., March 2026)

(b) Short project description

The short project description should be no longer than 1-3 paragraphs. The description should include a brief statement of the problem, objectives, proposed approach, and anticipated results. The short project description should be text only; do not include graphs or photos. The short project description will be added to the Bren School's website in the Master's Project Directory under Master's Research.

(c) Objectives

Write a short list of objectives based on the project proposal and feedback received during meetings between the faculty advisor(s), client, and student group. Typically, students will address one to three objectives for a Group Project. If a group has more than three objectives, they are probably too specific; it may be appropriate to move this detailed information to the technical approaches to solving the problem. Keep overarching objectives in mind throughout the project and use them consistently to monitor whether the group is on track or whether the group needs to re-orient its activities.

(d) Significance of the project

Who is the client and the broader audience, and why do they need to know the answer to the problem?

(e) Technical approach to solving the problem

Include an overall strategy and the specific tasks necessary to accomplish the objectives. Make a plan for how to obtain the needed data and handle the data when they arrive. While writing this section, ask insightful questions, such as: How will the data be prepared for analysis? Do some preliminary analysis of the available data. Describe the types of analyses necessary to address the objectives. Use the preliminary analyses to describe the *nature* of the results. Will the results meet the objectives?

(f) Milestones

Milestones will help students complete their Group Project by identifying key tasks and products that they will create as the project proceeds. In this section, students should list the dates by which they intend to complete each of the tasks outlined in the *Technical Approach*, including data acquisition, analyses, evaluation of results, and product development. Include the dates by which the group intends to complete drafts and final versions of each of its deliverables. At the end of each quarter, students should review and possibly re-organize the remaining milestones.

(g) Personnel Management Plan

The Personnel Management Plan outlines a group's management structure and general plan for the form and function of the group. It should specifically include:

> *i. Group structure and management.* All members of a group are expected to contribute to all project deliverables. Roles should be assigned to organize the group. Each group is required to assign the roles of a project manager (PM), data/computing manager (DM), financial manager (FM), and communication manager (CM). If the group has one or more summer internships, the

group also may choose to assign an Internship Coordinator (IC). This section should include a description of the duties assigned to each of these roles and who will assume the roles.

This section also should include the names of the faculty advisor(s), client, and (by the end of week 6) at least two external advisors with short descriptions of their roles. The faculty advisor(s) will meet weekly with students during the academic year; participate in spring and fall review meetings; review and provide feedback on the work plan, faculty review presentation, final report, executive summary, and final presentation; and assign grades to students for ESM 401A, 401B, 401C, and 401D.

The client and external advisors may be involved with the project to a greater or lesser degree, depending on their availability, expertise, and desired level of engagement. Clients and external advisors will participate in spring and fall review meetings. Some clients and external advisors will want to review and provide feedback on a portion or all of the final report or other deliverables. It is the group's responsibility to assess how much involvement is desired and appropriate for clients and external advisors and to provide opportunities for their engagement (e.g., sufficient time to review materials).

ii. Meeting structure. The students should describe who will schedule the meetings and meeting rooms, notify participants, and take and distribute meeting minutes. It is the group's responsibility to schedule meetings with the faculty advisor, client, and external advisors and notify them with sufficient time so they can join the meetings and review background materials.

iii. Guidelines for interacting with faculty advisors, clients, and external advisors. Describe who will be the primary point of contact for the faculty advisor(s), client, and external advisors. Describe how the group will keep its client informed of progress. Groups must always use the highest professional standards in their interactions with faculty advisors, clients, and external advisors.

iv. Systems to ensure that critical tasks are completed on time. Describe the group's approach to tracking progress and completing milestones on time. How will the group do this? Who will make sure that projects are getting done on time? What is the protocol for addressing late or no submission of interim and final products?

v. Procedures for documenting, cataloging, and archiving information. Documents, contact information, messages, calendars, websites, budget projections, and expenditures must be accessible to all Group Project members. Students should describe their approach to organizing information gathered and generated by the group. If there are delays or failures, the entire project can be adversely affected.

vi. Overall expectations of group members and faculty advisors. Students should discuss with their faculty advisors their own and their advisors' expectations. Document the expectations of the faculty advisor and students regarding faculty involvement and grading criteria (See Section 5. Project Evaluation).

Description of Work Plan Part 2 components:

(h) Background and literature review

Early in the project, the group should find out what is known about the topic that it is addressing. The group 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 group will also need to search for technical literature (journals, books, electronic resources) describing and explaining the problem and methods for studying it.

The group should resist the temptation to locate a source on the basis of keywords or a title, and then 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 group 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 perspectives which can lead to innovation. It is not simply a matter of meeting a quantitative target, such as "refer to *n* articles."

Groups 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. Groups unfamiliar with these databases should take advantage of the training in library research techniques provided by UCSB Research Librarian Kristen LaBonte (klabonte@ucsb.edu). Each group is encouraged to schedule a meeting with the Research Librarian at least once in Spring Quarter to learn more about the available resources that are related to their specific topic.

If the literature review is comprehensive, clearly presented, and well referenced, it will form an integral part of the final report, saving valuable time at the end of the project.

(i) Data Management Plan

You should identify key datasets needed for the project, their source and availability. If you have them already available, indicate that in the Work Plan. If not, indicate your plan for data acquisition.

Data, metadata, and associated code emerging from the project will be archived for public use. The only exception is for data restricted by a Non-Disclosure Agreement or otherwise restricted by a license. For both public and restricted data, the group's work plan must include 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 the group will collect or re-use, including the file types, data set size, the number of expected files or sets, content, and source of the data (creator and method of collection).
>
> *ii. Data standards.* Are there any standard formats in the specific research field for managing or disseminating the data sets that have been identified (e.g., XML, ASCII, CSV, .shp, .gdb, GeoTIFF)? Who from the group will have responsibility for ensuring that data standards are properly applied and data are properly formatted?
>
> *iii. Metadata.* Metadata is documentation that helps make data sets reusable. Think about what details (metadata) someone would need in order to be able to understand and use these files. For example, perhaps a readme.txt file is necessary to explain variables, the structure of the files, etc. In addition, metadata should follow disciplinary standards, including ontologies and vocabularies. If applicable, describe how the group's model construction, scripts, and/or workflows will be documented.
>
> *iv. Data sharing and access.* The data may have significant value for other researchers beyond this project, and sharing this data is part of the group's responsibility as members 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 there is data that is not appropriate for sharing due to confidentiality, NDA, or disclosure risk, then describe that here.
>
> *v. Intellectual property and re-use.* If data were collected from the client organization, does the group have the right to redistribute it? If so, are there any restrictions on redistribution? If the group created its data files, will it assign a Creative Commons license to its data?

vi. Data archiving and preservation. Throughout the project, the group may produce a large number of files. At the end of the project, groups must submit data used in the project (except data protected by non-disclosure agreements) and associated metadata. Not all data needs to be saved. If another researcher wanted to replicate the group's work or re-use the group's data, what data and documentation would be required for them to do so? Where will the data and metadata be stored after the project is completed? Is there a subject-specific and/or open-access repository that is appropriate for the data? If students need assistance in evaluating repositories, they should contact UCSB Library's Research Data Services (RDS) Department rds@library.ucsb.edu. Alternatively, students may use the DMPTool to create machine-actionable DMPs, by choosing the generic Data Curation Centre (DCC) template.

(j) Deliverables

There are two types of Group Project deliverables: (1) deliverables for the client and (2) academic deliverables required to complete ESM 401 and fulfill the requirements of the MESM degree. In this section, list the products that will be created for the client. Also list the academic deliverables including work plan, data and metadata, faculty review presentation, final report, executive summary, final presentation, and any optional media/communication products you intend to create.

The group should use the list of deliverables to gauge its progress. Some of the deliverables can be produced in the early stages of the project. The group should continually keep the list of deliverables in mind when they are working on the project.

(k) Budget and Budget Justification

See Appendix V for a Sample Group Project budget. Each project will receive $1,000 plus $200 for printing. If the expenses are not standard operating costs, please provide a short justification for why the expenses are critical for the project. If you are unsure of whether expenses are authorized, please consult Bren purchasing procedures and/or contact the Finance team. The group's Financial Manager must meet with the Business Officer before hiring any prospective consultants for Group Projects.

(l) References Cited

Include a bibliography of references used to support the group's research. Information derived from other authors must be cited properly. The reference citations should be presented in a standard and consistent format.

3. Work Plan Review

Before the end of the first Spring Quarter, groups are required to schedule, organize, conduct, and document a work plan review meeting. The purpose of the review is to gain critical feedback regarding the project's objectives, scope, and proposed approaches. The most valuable review meeting will be one that elicits strong, detailed suggestions for actions to take or avoid.

The work plan review meeting must include:

a. All group members
b. Faculty advisor(s)
c. Client
d. Two or more external advisors

Before scheduling the meeting, the group and faculty advisor must agree on the attendees, agenda, date, time, and location. Groups should schedule their work plan review meeting at a time when their faculty advisor(s) can participate in person or via Zoom. If any of the other participants are not able to attend the meeting, the students must engage them via teleconference or Zoom.

Participants must be notified of the meeting date and time <u>at least 2 weeks</u> in advance. The group must work with the faculty advisor(s) to plan the spring review meeting. However, the group is responsible for making necessary arrangements (e.g., preparing and distributing the work plan and scheduling the meeting venue), and the students will lead the meeting with the faculty advisor(s) as a participant.

Following the work plan review meeting, groups will submit to their faculty advisor(s) a one-page summary of the meeting, paying particular attention to changes that were suggested, and whether they were accepted or rejected by the group. Groups should send written thank-you notes to participants in the spring review meeting. The Spring Quarter performance evaluation and grade for ESM 401A will be based in part on how well the students plan, conduct, and document the review meeting. Feedback must be accurately documented so it can be incorporated into the revised final work plan. The final work plan is due to the faculty advisor(s), client, and external advisors by the last day of Spring Quarter.

4. Evaluations

By the end of each quarter's last instructional day, students must fill out and submit a Group Project Peer and Self Evaluation Form via Qualtrics. The evaluation requires realistic reflection on the progress and functioning of the group. The primary goal of the evaluations is to inform the faculty advisor(s) and Bren Projects Team of group dynamics and any problems that may require future intervention. With appropriate justification, self and peer evaluations may impact grade assignments by the faculty advisor(s). Evaluations are confidential from other group members. This form can be found online at: https://bren.ucsb.edu/academic-resources-current-students.

B. ESM 401B (Fall Quarter)

Students must enroll in ESM 401B Master's Group Project for 4 units with their advisor in Fall Quarter of the second year of study.

Students should meet twice a week in Fall Quarter with (1) all group members and (2) all group members and the faculty advisor(s). In Fall Quarter, students typically 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 for the final report as possible. Groups must also hold a Fall Quarter progress review meeting.

By the end of Week 5, the group will submit an interim report to faculty advisor(s) describing the group's progress toward project objectives. Structure the report as a rough outline for the Final Report, including sections on project objectives, significance of the project, background and literature review, data and methods, and analyses and results, keeping in mind these sections will be incorporated into the Final Paper. If these sections are completed satisfactorily, they will need only minor editing for the final phase of the project. The advisor will provide written feedback on the updated rough outline by the end of Week 6.

1. Fall Progress Review Meeting

By the end of Week 9, each group must hold a progress review meeting. The purpose of the meeting is to report the group's progress to its faculty advisors, client, and external advisors at the mid-point of the project, and to obtain feedback intended to strengthen the group's research. The meeting should be scheduled late enough in the quarter so that some progress has been made, but early enough so that changes can be made without seriously impacting the group's timeline.

The Fall Quarter progress review meeting should cover the following:

a) Review of project objectives
b) Available data and approach
c) If available, preliminary results and findings
d) Timeline for remaining tasks and deliverables

Students must coordinate with their faculty advisor(s) 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 their client and external advisors. Students should contact the client and external advisors at least 2 weeks before the fall progress review meeting. Students should provide the faculty advisor(s), client, and external advisors with a meeting agenda and any supporting materials.

At the meeting, groups should present a brief review of project objectives. These may evolve over time as the project develops. However, the group must maintain open communication with its faculty advisor(s) and client 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 client and external advisors to share their feedback about how the group can solve any problems and complete the project on time.

Following the fall progress review meeting, students should write thank you notes to the client and external advisors and submit to their faculty advisor(s) a 1-page summary of the feedback gathered during the meeting.

2. Outline for Final Report

At the end of Fall Quarter, each group submits an outline for the final report to its faculty advisor(s). The outline should include:

a) Revised project objectives
b) Background and significance (expanded from work plan)
c) Methods
d) Results
e) Discussion and conclusions
f) References

For each section of the outline, include as much information as completed to date and note the extent to which the section (i.e. background and significance, methods, results, etc.) 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 advisor(s) by the end of the third 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 group's

Communication Manager 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 group's first *best* effort to present its work!

Groups must complete these deliverables by the end of Fall Quarter to the satisfaction of their faculty advisor(s). Failure to do so may result in a grade of C- or lower, or I (incomplete) or NG (No Grade) in ESM 401B until the work is completed.

3. Evaluations

Each individual in the group must complete self and peer evaluations. Peer and self evaluations will be submitted via Qualtrics. The Bren Projects Team will send a link to the survey near the end of each quarter, and they must be submitted by the last day of instruction for Fall Quarter. Survey results will be sent to the Bren Projects Team and faculty advisors. This form is online and can be found at: https://bren.ucsb.edu/academic-resources-current-students.

C. ESM 401C (Winter Quarter)

Students must enroll in ESM 401C for 4 units with their faculty advisor(s) during the Winter Quarter of their second year. Students shall participate in meetings twice a week in Winter Quarter with (1) all group members and (2) all group members and the faculty advisor(s). The following academic deliverables are due in Winter Quarter (see the timeline for dates):

a) Preliminary draft Final Report (Week 3)
b) Group Project Faculty Review (Week 4)
c) Complete draft of Final Report (Week 7)
d) Final Report, may include 1-2 page executive summary. (Due last day of Winter Quarter)
e) Self and peer evaluations (Last day of Winter Quarter)

Groups must complete these deliverables by the end of Winter Quarter to the satisfaction of their faculty advisor(s). Failure to do so may result in a grade of C- or lower, or I (incomplete) or NG (No Grade) in 401C until the work is completed.

1. Faculty Review

On Friday of Week 4 of Winter Quarter (see group project timeline for dates), each group presents its project for faculty review. By the end of Week 3, groups should submit their preliminary rough draft of their final report to their faculty advisor(s). The Faculty Review presentation is an opportunity for the students to describe their approach to solving their client's problem and data considered. If preliminary results/findings are available, they should also be presented. The Faculty Review is a checkpoint in the Group Project process so that students receive feedback from other Bren faculty in addition to their advisors; the primary emphasis is on objectives and technical approach, data availability, and preliminary results. Faculty reviewers may also help to identify data gaps or different approaches. At the time of the review, the project is still underway, and students should integrate feedback from faculty reviewers to the extent possible.

For the Faculty Review, groups will prepare a 20-minute presentation. The focus should be on the project's significance, data, methods, and preliminary results. Students also may include any outstanding questions for which they are seeking guidance. Following the presentation, two Bren faculty reviewers will engage students in 20 minutes of questions and discussion. It is recommended that no more than three group members present since speaker transitions are disruptive and generally reduce the effectiveness of the presentation, especially when there is limited time. All members of the group must be in attendance and will be part of a panel seated in front of the audience. The entire group will participate in answering questions, as appropriate. Every team member must present during either the faculty review or public presentation; groups should discuss in advance who will present at these events.

Groups should expect questions and criticism from their reviewers that may result in some revisions to their final reports. It is not expected that the two faculty reviewers read the draft final report although some may choose to do so. It is the group'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 group, summarizing the strengths of the project and/or recommendations for improvement. The Bren Projects Team will collect and distribute written feedback to the group members and faculty advisor(s).

The entire Bren School community is invited to attend the Master's Project Faculty Review Presentations. The Bren Projects Team makes all arrangements, including setting the presentation schedule, assigning faculty reviewers, and facilitating presentations and Q&A. The Bren Projects Team will provide a workshop on how to prepare for Faculty Reviews in early Winter Quarter. Groups should invite their client and external advisors to attend this presentation.

2. Final Report

The final report is a complete discussion of the project's objectives, significance, methodologies, results, and accomplishments. A rough draft of the final report must be submitted to the faculty advisor(s) by the end of Week 3 and 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 group project timeline for dates). The deadline for the final report is firm. If additional time is needed, the group must complete a formal petition including a justification for an extension to the deadline.

The final report should reflect the group's ability to articulate in writing the 1) problem, 2) scope of work, 3) analytical approaches, 4) results, 5) recommendations and conclusions, and 6) how the work is related to larger issues. The final report must demonstrate that the group has the ability to create original interpretations of the work of others and/or generate original data that leads to original interpretations.

Conclusions and recommendations in the report are to be based only on 1) original interpretation and synthesis of the work of others; 2) original data and interpretations of the data; and/or 3) a combination of 1 and 2. The unsupported expression of opinion in the final report is not appropriate. As noted earlier, the final report should provide an honest assessment of the state of science, communicating both pros and cons of each individual issue rather than advocating for a specific outcome or point of view. Students should present their data, results, and recommendations with the information needed to convince the client, audience, and readers of the final report that all relevant evidence has been explored and analyzed before making conclusions or recommendations. Students should analyze the pros and cons so the audience will understand and be convinced that the conclusions are justified. The final report should demonstrate that students understand both sides of each issue and the scientific basis for each choice or assumption.

The final report typically includes the following:

- Title page
- Completed signature page
- Table of contents
- Project objectives and significance
- Background
- Methods
- Results
- Discussion
- Conclusions
- References

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

Adherence to accepted rules of citation is required. Groups should choose a method of citation and use it consistently, i.e. MLA, APA, Chicago, etc. Citations must provide sufficient information for a reader to access the cited work, assuming appropriate permissions (e.g., a journal subscription).

Groups should expect multiple revisions and iterations with their faculty advisor(s) before their report is finalized. The Communication Manager should review all sections of the final report to make sure 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 group members without at least one group member 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 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 advisor 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 group's faculty advisor(s) likely will be the only person/people who read and provide feedback on the complete draft of the final report. Faculty reviewers at the project's Faculty Review (see below) are <u>not</u> expected to read the drafted final report, although some may choose to do so. Some clients and external advisors also may have the interest, time, and expertise to review and provide feedback on some or all of the drafted final report and/or other deliverables.

Final reports <u>must not exceed 200 pages</u> 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 group must provide an electronic copy (PDF format) of the final report, including an unsigned signature page, to the Group Project Team,, faculty advisor(s), client, and external advisors. The final report will be posted to the Bren School website unless an NDA restricts public sharing. Students must submit a stand-alone copy of the signed signature page to the Group Projects Team. The signed signature page is not posted on the website to protect the personal information of students and faculty.

Groups must complete these deliverables by the end of Winter Quarter to the satisfaction of their faculty advisor(s). Failure to do so may result in a grade of C- or lower, or I (incomplete) or NG (No Grade) in ESM 401C until the work is completed.

3. Evaluations

Each individual in the group must complete self and peer evaluations. Peer and self evaluations will be submitted via Qualtrics. The Bren Projects Team will send a link to the survey near the end of each quarter, and they must be submitted by the last day of instruction for Winter Quarter. Survey results will be sent to the Bren Projects Team and faculty advisors. This form is online and can be found at: https://bren.ucsb.edu/academic-resources-current-students.

D. ESM 401D (Spring Quarter, Second Year of Study)

Students must enroll in ESM 401D for 2 units with their faculty advisor(s) 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 group members and (2) all group members and the faculty advisor(s). The following academic deliverables are due in Spring Quarter (see group project timeline for dates):

a) Executive summary
b) Abstract and Acknowledgements
c) Final presentation
d) Data and metadata
e) Self and peer evaluations

At the end of the fourth week of Spring Quarter, 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 the public at large. Groups should personally invite their clients, external advisors, and other professionals with whom they interacted over the course of their project. Students may also extend invitations to personal guests.

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Groups must complete these deliverables to the satisfaction of their faculty advisor(s). Failure to do so may result in a grade of C- or lower, or I (incomplete) or NG (No Grade) in ESM 401D until the work is completed.

1. Executive Summary

The executive summary provides students with the opportunity to distill, integrate, and summarize their work for a non-technical audience, without relying on jargon or complex academic or inaccessible language. Every MESM student should be able to provide a succinct summary of their research to a non-technical audience, highlighting their major findings, implications, and relevance. Students must understand that their science is most impactful when it can be understood, and they must develop communication skills to not overburden readers with irrelevant information. The executive summary is a short (1-2 page) document that requires students to think broadly about the meaning and implications of their work, while carefully and accurately describing research questions and methods. Developing an executive summary is a critical, foundational skill 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 Group Project:

- Environmental problem
    - Why is this research important ("so what")? This should be at the top, in the first 2-3 sentences, and should be clear.
    - What environmental problem does this solve, and why does that matter?
- Group findings
    - The group's findings and their implications should be described before the background, literature summary, or methodology (which may be included later in the executive summary).
- Environmental impact
    - Include examples of people, communities, or environments/regions that will benefit from this research.
    - How will the group's research be used to effect positive change (which agencies could use the findings to create change and, what are the next steps)?
- Communication style
    - An executive summary should be:
        - tailored to a public audience, such as donors, partners, and future employers,
        - modern and visually appealing,

- a stand-alone document, and
- 1-2 pages, including acknowledgment or logo of the client and funding source.

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. The 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), Group Project members, faculty advisor names, and academic quarter 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 inches between columns. Section headings should be in larger type.

A draft of the executive summary must be submitted to the faculty advisor(s) by the second Friday in Spring Quarter (see group project timeline for dates). The faculty advisor(s) 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 advisor(s) and Bren Projects Team by the end of the third week of Spring Quarter.

2. Abstract and Acknowledgements

The abstract is a one-paragraph brief summary of the group project, meant for a non-technical audience. The length of the abstract should be roughly around 225-250 words. The Acknowledgements should include advisors, professionals, organizations, funding sources, etc. that assisted the group project. Each acknowledgment should include the person's name, title (if known), and affiliation/organization.

A template guide for the abstract and acknowledgments will be provided to students during the last week of Winter Quarter. Please note that the abstract and acknowledgments will be posted on the Bren website. An abstract, along with the project title, group members, advisor(s), and acknowledgments must be sent electronically to the Bren Projects Team by the end of Week 2 of Spring Quarter (see group project timeline for the date).

3. Final Presentation

Master's Project Final Presentations celebrate the completion of innovative, leading-edge research, and offer Bren MESM students the opportunity to share their work with 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, the value of the students' degrees. All 2nd-year MESM students are required to participate in the final presentations. Participants are advised to dress in business attire.

Each group has 25 minutes, which includes 13-15 minutes for the presentation and 10-12 minutes for questions. It is recommended that no more than three group members present since speaker transitions are disruptive and generally reduce the effectiveness of the presentation, especially when there is limited time. All members of the group must be in attendance and will be part of a panel seated in front of the audience. The entire group will participate in answering questions.

The audience at the Final Presentations is different from the audience at Faculty Reviews. The Final Presentations need to be understandable to a diverse group (employers, experts, non-experts, family, 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.

4. Data and metadata

One month prior to the end of Spring Quarter, data used in the project and associated metadata and code must be archived in an approved disciplinary repository such as EDI or in a generalist repository such as Dryad or Zenodo. For assistance with preparing data for archiving, please refer to Project Data Management website (https://ucsb-library-research-data-services.github.io/project-data-management/preserve.html) maintained by the RDS team at the Library. If you need any further assistance with your data or code preservation, please contact rds@library.ucsb.edu.

As described earlier, data used in a Group Project may have significant value for other researchers, and sharing the data is the responsibility of the group. Data protected by non-disclosure agreements (NDAs) are exempted from this requirement. Throughout the project, the Data Manager should organize the data and create metadata so that after the project is completed, another user may access and utilize the data. The Data Management Plan (DMP) included in the work plan sets forth the guidelines for data management and archiving. For assistance with preparing data for archiving, please contact rds@library.ucsb.edu.

5. Evaluations

Each individual in the group must complete self and peer evaluations. Peer and self evaluations will be submitted via Qualtrics. The Bren Projects Team will send a link to the survey near the end of each quarter, and they must be submitted by the last day of instruction for Spring Quarter. Survey results will be sent to the Bren Projects Team and faculty advisors.This form is online and can be found at: https://bren.ucsb.edu/academic-resources-current-students.

5. PROJECT EVALUATION

A. Faculty Evaluation of Students

Each student in the group will receive a separate grade for each quarter of the project (ESM 401A, 401B, 401C, 401D). If a group performs well together, it is likely that all group members will receive the same grade, but this is not guaranteed.

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

1. Depth of understanding. A working understanding of the published literature and facts immediately relevant to the project. A literature review should be largely completed by the end of Spring Quarter of the first year of study.
2. Critical thinking. A critical perspective on the quality and shortcomings of prior work relevant to the project. This should include an identification of attempts to answer similar questions in other contexts. This critical review should be at least 50% completed by the end of Spring Quarter of the first year of study and fully demonstrated by the fall progress review.
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. This should be demonstrated at a level of 75% by the end of the Spring Quarter of the first year and 100% by the beginning of Winter Quarter of the second year.
4. Originality. The originality of analysis, problem formulation, and scope of work. This should be demonstrated throughout the project.
5. Professional relationships. Formation of working relationships with environmental professionals outside of the Bren School. In some cases, external advisors may be identified when the Group Project is proposed. In other cases, the students may have to identify external advisors who can

benefit the Group Project. This should be completed by the middle of Spring Quarter of the first year of study.

Group members shall demonstrate the highest level of professionalism and respect in their dealings with each other, their faculty advisor(s), client, external advisors, and other stakeholders.

6. Resourcefulness. Throughout the project, students shall demonstrate initiative in finding information, identifying tools necessary to achieve the scope of their project, seeking outside advisors, acquiring necessary funding, and establishing internships for themselves as appropriate.

7. Punctuality. Students shall attend all group meetings on time and be ready to engage with their team. They must deliver intermediate and final products on schedule, both to meet Bren School deadlines as well as intra-group deadlines established by the Project Manager.

8. Knowledge and analytical thinking. Students shall gain knowledge about the 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, scholarly, and well-communicated. Each group member must co-present the work orally, either at the Faculty Review or Final Presentation, and be present and participate in both events.

   All group members, particularly Project Managers, are expected to communicate concerns and issues with each other and their faculty advisor(s) in a timely manner.

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

B. Student Evaluations of Faculty Advisors

At the end of the project, all Group Project members should complete an evaluation for their faculty advisor(s) and submit it to the Bren Projects Team (see Appendix I). The Bren Projects Team compiles all comments for anonymity and provides them to your faculty advisor(s) only after the final grades for ESM 401D are 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 Bren Projects Team or the Assistant Dean. These staff members 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 Group Project is allotted $1,000 as a base budget, and up to an additional $200 for printing on Bren School printers. The Financial Manager (FM) for each group must attend a meeting with the Bren School's Finance Team in the spring of the first year of study in order to activate the group's account.

Each group must create a budget for its project, estimating expenses to the best of their ability and accounting for phone calls, travel, software, datasets, laboratory fees, business cards, reference books, presentation materials, photocopying, publication expenses, and a printed copy of the final report (if requested by the faculty advisor(s) or client). The budget is for reasonable expenses directly related to the Group Project.

Bren School Purchasing Procedures: https://bren.ucsb.edu/purchasing

Please note: There are numerous restrictions to the use of Group 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 group's Financial Manager must discuss all potential hires with the Bren School's Business Officer before proceeding with the hire. Restrictions related to the 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., client, external advisor). The funds cannot be used to provide food and beverages for meetings that include only UC personnel and/or students. Your client must be in attendance for food/beverage to be reimbursed. If you do not have a client, food/beverages will not be reimbursable at GP meetings. 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 (https://bren.ucsb.edu/travel).

**Under special circumstances, the group can request an exception to policy for expenditure for a gift. However, a request for an 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

- The Bren School's Financial Manager is the primary contact for budget matters related to Group Projects. The Financial Manager is Bridget Mastopietro (finance@bren.ucsb.edu; bridget@bren.ucsb.edu); Bren Hall 2516; 805-893-3540.
- The Bren School's Purchasing Coordinator processes purchase orders and reimbursements for items associated with Group Projects (purchasing@bren.ucsb.edu) and paperwork related to travel (travel@bren.ucsb.edu) associated with Group Projects.

Group Project Financial Managers

Each group must designate one person to serve as the group's Financial Manager (FM). The list of student Financial Managers will be provided to the Bren School's Finance Team and an informational/training meeting for student Financial Managers will be scheduled to discuss policies and procedures.

A. Project Codes

Each Group 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." Group 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 use Concur to process reimbursements. The student Financial Manager also 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 or do not conform to University policy, reimbursement requests will be returned and the group members will be responsible for funding the activity. Please note: There may be a delay from the time a group makes a purchase or submits a reimbursement request to when it is posted in GUS. It is important for the student Financial Manager to independently record and track all expenses for the group 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 group receives up to $200 for printing on *Bren Hall* printers. These funds must be transferred to the individual printing accounts of Group Project members. If groups require more than $200 for Bren printing, then groups must request a transfer of some of their project funds to printing accounts. If there are not adequate funds remaining and groups require more printing, they will have to pay for it themselves and the charge will be billed to students' BARC accounts.

D. Copying

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

E. Visitor Parking Permits

Visitors may purchase short-term "ePermits" from Pay Stations in visitor parking lots. The vehicle's license plate will serve as the parking permit. Customers purchasing parking through a Pay Station are no longer required to display the "dispenser permit" on the vehicle dashboard.

The student host also may purchase a parking permit on behalf of their guest. Requests for VIP parking permits must be made 14 business days in advance as required by UCSB Transportation and Parking Services (TPS) and must include the vehicle make, model, license plate number, and license plate state within the request. Requests for visitor ePermits made less than 2 weeks in advance cannot be guaranteed. "Guest permits" are $8.00 and give visitors access to visitor parking lots only (no access to Lot 1). "VIP permits" are $10.00 and give visitors access to both visitor and staff parking lots (access to Lot 1). 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 extremely important individual with a time constraint.

F. Purchasing

All purchasing must be processed through the Bren School Purchasing Coordinator. The preferred purchasing method is to email purchasing requests and the group's 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. Student Financial Managers should understand purchasing policies and procedures (https://bren.ucsb.edu/purchasing) and ensure that their group abides by these rules. *Please note:* Any non-consumable items purchased by the group 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 activities is not allowed.

G. Reimbursement

If a vendor doesn't allow online payment through FlexCard or through a Gateway PO, group members may use personal funds and then submit a receipt to the Purchasing Coordinator to be reimbursed. Please note: Business Expense Reimbursements should always be a last resort, and your Department should direct everyone to use Gateway or use your Department Flexcard for these kinds of purchases. There is a new process for submitting reimbursement requests through Concur. If you are a UC employee, please refer to https://bren.ucsb.edu/purchasing for detailed guidelines on how to complete a Business Expense Report and an Entertainment Report. If you are not a UC employee, please contact purchasing@bren.ucsb.edu for reimbursement requests. Groups have access to their Group Project funding until the last day of Spring Quarter of the second year of study. Receipts should be submitted at least two weeks before the end of Spring Quarter to ensure sufficient time for processing.

H. 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. More information on travel can be found on the Bren website here: https://bren.ucsb.edu/travel

I. Outside Funding

Most Group Projects do not require outside funding and are able to fully complete the scope of work within the budget provided by the Bren School. In some cases, a project's scope of work, required travel, or materials exceed the Bren School budget and additional costs must be funded by the client. When this is the case, costs must be estimated and the client must acknowledge that they are able and willing to pay up to the amount that has been estimated. This must be established in the initial Group Project proposal. If a client does not pre-approve the budget, a project with additional costs is unlikely to be selected.

Gifts

In limited circumstances a client or other external funding source may wish to make a contribution to support a Group Project. 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 Bren student or faculty member has the authority to sign paperwork related to the acceptance of money.

If a gift is received to support a particular Group Project, then a special Project Code will be created for the group 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 Group 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(s). 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 Group Projects in the form of a gift or, better yet, if the client manages the funds directly. Please note that grants and contracts are required to provide for indirect (overhead) costs, which are 55.5% of the award, to be paid to the university; gifts are assessed at 6% overhead. If a Group Project client or 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 the acceptance of money.

7. COMPUTER RESOURCES

The following describes computer resources available for each Group 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 Communication Manager

Each group should designate a Data Manager (DM) who will have primary responsibility for maintaining the group's shared online information and adhering to the group's Data Management Plan. Designating a single Data Manager ensures that a group'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 group members on the use of directory and file permissions and managing information within the group's information architecture.

Each group should also designate a Communication Manager (CM). The CM will manage public communications on behalf of their group. CM responsibilities may include writing the short project summary for the Bren GP website in Spring Quarter of the first year, preparing educational materials about the project, maintaining a public blog or social media posts, presenting 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 group's research narrative is strong in both the Final Presentation and Final Report and is the group'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 discussing outreach options with their client and working on any required outreach materials for their project (not mandatory, variably applicable).

B. Project Alias

Each group 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 group's research topic.

C. Group Email List

Each group will be added to an email list for their project; the email is gp-alias@bren.ucsb.edu. This will be used as a contact email for the entire group and is accessible to Bren staff and outside parties. Groups can also make an internal list for only group 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 Group Project. The shared directory will be named "[alias]," and will be housed on a Bren School Windows server (esm.ucsb.edu). This shared directory will be accessible from all Windows systems in the ESM domain via \\esm.ucsb.edu\group projects\GroupProjects2026\[alias]. For Group Project members, this will be mapped to G:\. The pathname "gpshare" in the remainder of this document refers to this shared directory.

E. Group Access Permissions

The Bren School Compute Team will create a Windows group for each Group Project, named "[alias]." The members of these Windows groups will be the student members of each group, and if requested other parties, such as faculty advisor(s). Unless otherwise specified, all files and directories discussed in these guidelines will be owned by the group's Data Manager. The Data Manager has the ability to modify group access permissions, while other members do not. The Data Manager and all group members are responsible for ensuring that the Windows group "EsmSystemAdmins" retains "full control" permissions on all directories within the Group Project's directory structure that the group wishes to be backed up. Without appropriate permission, regular backups of a group'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 group's Data Manager may create a group-writeable directory GPSHARE\workdocs, under which each project member may create their own subdirectory GPSHARE\workdocs\member. These subdirectories should be readable by a group'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, 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 group members to read.

G. Library (Recommended)

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

We suggest that Data Managers follow the recommendations below while preparing files and organizing their project folder(s):

- Data licensing
- File formats
- File naming
- Project folder organization
- Code documentation
- README

H. Calendar (Optional)

Each group's Data Manager and/or other specified group 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 Group 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

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

Appendix I

Evaluations

Peer & Self Evaluation:

Peer & Self Evaluations will be submitted via Qualtrics. The Bren Projects Team will send a link to the survey near the end of each quarter. Survey results will be sent to the Bren Projects Team and faculty advisors. Peer & Self Evaluations (completed quarterly) are available online: https://bren.ucsb.edu/academic-resources-current-students.

Faculty Evaluation:

The faculty evaluation will be submitted via Qualtrics. The Bren Projects Team will send a link to the survey in Week 5 of Spring Quarter of the second year of study. Survey results will be kept anonymous, compiled in summary format, sent to advisors after Spring Quarter grades are issued, and recorded in personnel files.

Appendix II

Formatting & Filing Requirements for MESM Group Project Final Reports

Responsibility for the content of the Final Report

The group members and faculty advisor(s) are responsible for the content of the final report. The faculty advisor must review the entire draft report before giving final approval. This review includes:

- All preliminary pages or front matter (e.g., preface, dedication, acknowledgments, 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 advisor(s) have signed the signature page. If changes are necessary after the faculty advisor(s) has approved the report, the group must have their advisor sign a new signature page.

The organization, presentation, and documentation of each Group Project must meet the standards set by the faculty advisor(s) 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 advisor(s).

Group Project title and signature page requirements

Title page requirements

Each Group Project final report must include a title page with the following information:

- Title of the Group Project
- "Master of Environmental Science and Management" as the students' degree objective
- Bren School of Environmental Science & Management, University of California, Santa Barbara
- Names of group participants (alphabetical order recommended) and faculty advisor(s)
- Month and year the final report is signed by the faculty advisor(s)

Bren staff will link each Group Project on the Bren School website by graduating year.

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 and because Group Project final reports will be posted to the Bren website, students should 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 Group Project is approved by:" must appear immediately above the faculty advisor(s)' names. The approval page must contain the month and year the project is signed by the faculty advisor(s).

Group Project faculty advisors and project members must sign a stand-alone copy of the signature page and submit it to the Bren Projects Team. All signatures must be by digital signature (e.g., DocuSign) or 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.

Standards for Group Project title

The Group 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. Group Project titles should represent a summary of the research and not be lengthy. 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 advisor(s).

Table of Contents

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

Other preliminary pages, such as those for acknowledgments or lists of figures and charts, are optional.

Abstract

An abstract is required. It should provide a brief synopsis of the research and be succinct (225-250 words). The abstract should be placed following the table of contents and any optional preliminary pages (i.e., acknowledgments).

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 keywords** 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).

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 the top of the paper
RIGHT = 1-inch

BOTTOM = 1 inch from the bottom of the 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 oversize 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 edge of the page. The 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 final report must be numbered in accordance with the following standards:

Neither the title page nor the 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 signature pages must be numbered sequentially beginning with the lower case Roman numeral “iii.” All preliminary pages are to be numbered using lowercase Roman numerals (iii, iv, v, vi, etc.). This includes dedications; table 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 also should 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, 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 Group Project Final Report

Once the faculty advisors approve and sign a group'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 Bren Projects Team by the end of Winter Quarter. A petition is required for late submissions. The final report will be linked on the Bren School website unless it is protected by an NDA. Please contact the Bren Projects Team with any issues or questions about these guidelines.

The Bren Projects Team will review each final report to verify that it meets the filing standards and will notify each group 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 the 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 225-250 words
Standards Governing Titles and Taglines	Concise titles and taglines (strive for no more than 10 words). Easily identifiable keywords that summarize research. Word

	substitutes replace non-alphabetical symbols in scientific titles.
Faculty Signature on Approval Pages	Faculty advisor(s)' signatures either electronic via DocuSign or in black or blue ink.
Responsibility for Content	Students and faculty advisor(s) responsible for all content of the final report. Primary faculty advisor(s) must review the entire final report before signing.

Appendix III

Sample Final Report Title Page

UNIVERSITY OF CALIFORNIA

Santa Barbara

PROJECT TITLE

A Group 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 Group Project report, we archive this report on the Bren School's website such that the results of our research are available for all to read. 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 principle of the Bren 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 Group Project is required of all students in the Master of Environmental Science and Management (MESM) Program. The project is a year-long activity in which small groups of students conduct focused, interdisciplinary research on the scientific, management, and policy dimensions of a specific environmental issue. This Group Project Final Report is authored by MESM students and has been reviewed and approved by:

ADVISOR

ADVISOR

DATE

Appendix V

Sample Group Project Budget

ITEM	COST
Conference Calls	$30
Review Meeting Refreshments (permitted only with non-UCSB personnel present)	$50
Software	$340
Presentation expenses	$50
Conference attendance	$260
Administrative supplies	$20
Business cards	$60
Travel / Site visits	$190
TOTAL	$1,000
Printing*	$200

* Printing budget is fixed at $200 to an individual in the Group Project.