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INTRODUCTION

These guidelines define the Bren School’s expectations for Master’s Group Projects and explain the Group Project 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, but also 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 shall collaborate with outside clients, which may be drawn from industry, government, or non-government organizations. Clients must present a problem that can be successfully addressed and solved by the Group Project.

The goals of the Group Project are to provide students with (1) training and experience in multidisciplinary real-world environmental problem-solving, (2) a mechanism to apply their technical expertise in solving complex environmental problems, and (3) avenues for learning management skills of group dynamics.

All Group Projects have 3.5 quarters of corresponding courses, beginning spring quarter of the first year of study and ending in spring quarter of the second year. The project requires:

- an environment in which the students can learn to operate as an independent professional team;
- a spirit of trust and collaboration by all parties;
- limited client involvement, to allow students to develop their own ideas and approaches;
- healthy and professional communications and rapport amongst all parties; and
- the ability of the students to choose courses of action, make mistakes, and learn from those experiences.
GROUP PROJECT TIMELINE OVERVIEW

Below are some of the key deadlines in 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 deadlines listed here.

### Spring Quarter 2015

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>Fri May 8</td>
<td>Draft Work Plan due to faculty advisors</td>
</tr>
<tr>
<td>Mon May 18</td>
<td>Feedback from faculty advisors due back to students</td>
</tr>
<tr>
<td>Fri May 22</td>
<td>Send revised Work Plan to faculty advisors, client and external advisors by May 22</td>
</tr>
<tr>
<td>By Fri Jun 5</td>
<td>Host work plan review meeting with faculty advisors, client and external advisors by this date</td>
</tr>
<tr>
<td>By Fri Jun 12</td>
<td>Submit 1-page summary of work plan review meeting to faculty advisors</td>
</tr>
<tr>
<td>Fri Jun 12</td>
<td>Submit final work plan to faculty advisors, client and external advisors</td>
</tr>
<tr>
<td>Fri Jun 12</td>
<td>Send web link for website to GP Coordinator</td>
</tr>
<tr>
<td>Fri Jun 12</td>
<td>Submit Self/Peer Evaluation to faculty advisors and GP Coordinator</td>
</tr>
</tbody>
</table>

### Fall Quarter 2015

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>By Fri Nov 20</td>
<td>Host fall review meeting with faculty advisors, client, and external advisors by this date</td>
</tr>
<tr>
<td>By Wed Nov 25</td>
<td>Submit 1-page summary of fall review meeting to faculty advisors</td>
</tr>
<tr>
<td>Fri Dec 11</td>
<td>Submit outline of Final Report to faculty advisors</td>
</tr>
<tr>
<td>Fri Dec 11</td>
<td>Submit Self/Peer Evaluation to faculty advisors &amp; GP Coordinator</td>
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### Winter Quarter 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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</thead>
<tbody>
<tr>
<td>Fri Feb 19</td>
<td>Draft of Final Report due to faculty advisors</td>
</tr>
<tr>
<td>Fri Feb 26 &amp; Fri Mar 4</td>
<td>Master’s Project Defenses</td>
</tr>
<tr>
<td>Fri Mar 18</td>
<td>Final Report (.pdf version) due to faculty advisors and GP Coordinator</td>
</tr>
<tr>
<td>Fri Mar 18</td>
<td>Submit Final Presentation Program Abstract to GP Coordinator (Template sent out by GP Coordinator 2 weeks prior)</td>
</tr>
<tr>
<td>Fri Mar 18</td>
<td>Submit Self/Peer Evaluation to faculty advisors &amp; GP Coordinator</td>
</tr>
</tbody>
</table>

### Spring Quarter 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri Apr 8</td>
<td>Draft Project Brief due to faculty advisors</td>
</tr>
<tr>
<td>Fri Apr 8</td>
<td>Draft Project Poster due to faculty advisors</td>
</tr>
<tr>
<td>Fri Apr 15</td>
<td>Final Project Brief and Project Poster (.pdf version) due to faculty advisors, GP Coordinator and posted on GP website</td>
</tr>
<tr>
<td>No later than Fri Apr 15</td>
<td>Print Final Poster and Project Briefs</td>
</tr>
<tr>
<td>1-2 weeks before Final Presentation</td>
<td>Take group photo w/ Faculty Advisors to use as the first slide in the Final Presentation</td>
</tr>
<tr>
<td>1-2 weeks before Final Presentation</td>
<td>Submit draft Final Presentation to faculty advisors for review</td>
</tr>
<tr>
<td>Apr 18-21</td>
<td>Practice and videotaping of Final Presentations</td>
</tr>
<tr>
<td>Fri Apr 22</td>
<td>Master’s Project Final Presentations (hard copy poster will be collected by GP Coordinator after Final Presentations)</td>
</tr>
<tr>
<td>Fri Apr 29</td>
<td>Submit Faculty Advisor Evaluation to GP Coordinator</td>
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</tbody>
</table>
1. GENERAL INFORMATION

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 Defenses, including Group Project and Eco-E Project Defenses, are held at the end of winter quarter. Master’s Project Final Presentations are held on Friday during the fourth week of spring quarter. The timeline overview provides 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 for a total of 14 units. Grading for all sections of ESM 401 is done by the group’s Faculty Advisors. With the exception of ESM 401B, the grades for these courses will be assigned at the end of their respective quarters. ESM 401B will always be assigned a grade of IP (in progress) at the end of its quarter, and will then retroactively receive the grade assigned to ESM 401C.

Students must achieve a grade of B 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.**

At the end of each quarter, students are required to complete a self and peer evaluation and submit the evaluations to their faculty advisor and Academic Programs Coordinator by the last day of the quarter. This form is on the Bren School website at: [http://www.bren.ucsb.edu/services/student/documents/PeerandSelfEvaluationRevised_003.docx](http://www.bren.ucsb.edu/services/student/documents/PeerandSelfEvaluationRevised_003.docx). These evaluations will be considered by the faculty advisor in assigning grades.

The faculty advisor signature(s) is/are required on the signature page of the report. A scanned copy of the completed signature page with all signatures must be included in the electronic copy of the final report (in PDF format). Even if passing grades are assigned, advisors may withhold their signatures until the Group Project is fully completed to their satisfaction. Students cannot be recommended for graduation until they have submitted an approved final report.

C. Student Time Commitment

Students should expect to devote at least 10-12 hours a week to their Group Project, although more time can be expected for some tasks. Work on Group Projects should be evenly allocated over the 3.5 quarters to avoid excess workload at the end of the project.

D. Summer Group Project Work

Some students usually participate in a summer internship associated with the Group Project. The client may want students in the group to apply for the internship(s) opportunities. In this case, students who are interested the internship should submit the necessary materials and the client will select the student who best matches the position. The client also may choose to defer 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 are able 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 not able to pay an intern directly, please contact the Bren School’s Business Officer 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.

E. Deliverables
The major deliverables for the Group Project are:
- Work plan
- Website
- Outline of final report
- Draft final report
- Final report
- Defense presentation
- Project brief
- Project poster
- Final presentation

F. Authorship/Ownership
Each member of the group is an equal owner of the intellectual property of the project. Frequently, groups divide the responsibility for some of the tasks that further the entire group’s work and 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, poster, 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 decision about their authorship. Even if a group member adapts the deliverables after the project has ended 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 or copyrighted or confidential. You should NOT make them available to third parties, or generally available online, without authorization from your faculty advisor AND the original source of data. If your group is working with confidential data, you will likely need a Non-Disclosure Agreement (NDA) between your client and UCSB. NDAs are developed, approved, and signed by UCSB’s Office of Technology and Industry Alliances. Under NO circumstances can a student sign an NDA with a client.
H. Publishing

If a group would like to publish their work, it is essential that they discuss this with their advisor. Faculty advisors are experts in peer-reviewed publication, and you want to take advantage of their knowledge and experience. Publishing peer-reviewed literature requires interfacing with a larger scholarly community, and this should be done in a way that reflects well on you, your advisor, your client, and the Bren School in general. Note that it often takes quite some time (months to years) to get a paper published.

I. Use of Human Subjects

Faculty and students who engage in research involving human subjects must obtain prior approval from the UCSB Human Subjects Committee (HSC). "Human Subject" means a living individual about whom an investigator (whether professional or student) conducting research obtains (i) data through intervention or interaction with the individual or (ii) identifiable private information. This means that if you will conduct a survey, you MUST obtain HSC approval in advance. Approval is required no matter with whom you will be interacting - even your friends or family!

If your group will use human subjects, please review the Office of Research site: http://www.research.ucsb.edu/compliance. The group must understand and abide by the policies and procedures. It can take some time to obtain HSC approval for your proposed research—this cannot be addressed at the last minute. There are serious consequences if your group is not in compliance. Human subjects cannot be interviewed, surveyed, or contacted in any way without prior approval from HSC.

2. COMPOSITION OF THE GROUP PROJECTS

A. Group Members

Each group is composed of 3 to 5 students. Students vote on projects by assigning preference points. Group assignments are determined by a program 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 project. The experience of completing a Group Project is the most important, no matter what the topic of the project.

B. Faculty Advisors

Each Group Project is assigned one or two faculty advisors who monitor progress and provide technical assistance, expertise, and project evaluations. The faculty advisors assign interim and final project grades. However, project leadership and management and the quality of the final products are strictly the students’ responsibilities.

Faculty advisors do not serve as project managers; their role is more that of a consultant. The advisors attend the regular weekly meetings of the group and are responsible for grading. The advisors may offer reactive advice, responding to activities in the group and giving advice when asked. The advisors also may give proactive advice regarding deficiencies and deadlines. It is important that students understand the role of the advisors and the limited, though important, role they play in directing the project. Each faculty advisor has his/her own unique approach. Students should expect variability in engagement, expectations, and feedback from one advisor to the next. During the first quarter, each group should clarify the expected level of interaction with their advisor(s). Groups should include this information in their management plan.
C. Clients

Clients supply the environmental problems 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. 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 may want 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 should 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 and external advisors 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 in-person meeting of the faculty advisor, client, and external advisors is not possible, then students should engage the client through teleconferencing (conference call, Skype, etc.). The students should invite the clients to attend the project’s defense and final presentation.

D. External Advisors

Interacting and networking with the professional community are critical components of the Group Project process. Groups must obtain the counsel of at least two external advisors—individuals from government agencies, industry, non-governmental organizations, or universities, or private citizens—who may be interested in the project or its data or deliverables. An external advisor is someone who has knowledge about your project topic and who can provide unbiased feedback. A Bren faculty member (in addition to the faculty advisor) may be considered as an external advisor, but only one of the two or more external advisors may be drawn from the Bren faculty. Each 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. External advisors need not review the entire final report, though 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 defense and final presentation-. Your external advisors are likely busy people and their time should be respected. When you schedule a meeting with them, please be prepared with an agenda and specific questions so the meeting time is valuable for them and you.

E. Group Project Coordinator

The Group Project Coordinator is a Bren staff member who assists students, faculty advisors, and the Group Project Committee in facilitating the Group Project process. The Group Project Coordinator for the Class of 2016 is Casey Hankey (casey@bren.ucsb.edu). Any questions or concerns regarding your group should be addressed to the Group Project Coordinator.
3. PROJECT MANAGEMENT

A. Group Meetings
Groups are encouraged to meet as often as necessary, but all groups must meet at least once a week at a designated place and time. Regular group meetings should not be scheduled on Monday through Thursday at 11:30 – 12:45 because these days and times are reserved for colloquia, career talks, and faculty meetings. The faculty advisors shall participate in the weekly meetings. However, it is the responsibility of the students, not the advisors, to schedule the meetings and make necessary arrangements. Advance notification of absences to the group is expected as a matter of courtesy. Participation in the 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 using Corporate Time (CT) for regular Group Project meetings. Three rooms are officially designated as Group Project meeting rooms—Bonsai (Bren Hall 4402), the Visitors Center, and Manzanita (Bren Hall 4024) – and only these rooms can be directly scheduled by students. Each group should designate a scheduler for the group and this person should be responsible for all CT entries for their group.

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

Corporate Time instructions can be found on the web at:
http://www.bren.ucsb.edu/services/computing/applications/corporate_time.html

To schedule a room:
• Open Corporate Time.
• Click on File, then Agenda, then Open.
• Replace your name with r:esms
• A list of Bren resources (rooms and equipment) will come up.
• Scroll down to the room you want to schedule (Bonsai, Manzanita, or Visitors Center).
• Double click on the name to view the calendar for that room.
• Schedule your meeting if the room is free at the desired time (if scheduling recurring meetings, please check all dates for potential conflicts).
• Be sure to list your name in the title of the meeting so that you can be contacted if there is a conflict.

In some circumstances (e.g., spring or fall review meetings), Group Project meetings may be scheduled in other rooms if the Visitors Center, Manzanita, and Bonsai are reserved. In this case, schedule a room by sending an email to scheduling@bren.ucsb.edu.

Please also use scheduling@bren.ucsb.edu to reserve a conference phone, if needed. A regular phone line can receive only one call at a time; you may dial out to two different numbers. Please contact Finance Manager Amy Burgard (amy@bren.ucsb.edu) at least one day before your event if you need a Ready Talk account (for two or more parties calling in) or a UCSB authorization code (required for long distance calls).
C. Conflict Resolution

The primary responsibility for intra-group conflict resolution lies with the group members. The faculty advisors should help to 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 Group Project Coordinator 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 written documentation of the problem. For example, if one member of a group is not doing his/her share of work or not providing timely products or products of adequate quality, the other group members must document dates of specific incidences and what efforts were made to address the problem. Only under these circumstances will it be possible for faculty advisors and administrative personnel to intervene and help craft a solution. Administrative involvement is generally limited and occurs only when there are serious issues that remain unresolved after considerable effort by the students and faculty advisors.

4. PROJECT DELIVERABLES

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

Students must pass ESM 401 courses with a B or better in order to eligible for the MESM degree. Students shall be actively involved with their group throughout the year-long project.

A. ESM 401A (Spring Quarter)

MESM students begin Group Projects in 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 advisors.

ESM 401A does not have a regular class schedule; instead, students are required to attend ESM 401A workshops, and schedule two weekly meetings for (1) all group members and (2) all group members and faculty advisors.

ESM 401A requires 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 during spring, fall and winter quarters. Students should strive to meet with their faculty advisor in person, if possible, or by teleconference or email if the faculty advisor is off-campus.

The first in-person meeting with the faculty advisor should be scheduled during the first week of the 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
have read the initial proposal critically and be prepared to discuss expectations for students and advisors. 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 research and the results and challenges of pilot work. Weekly meetings with the faculty advisor will continue in ESM 401B in fall, ESM 401C in winter, and ESM 401D in spring.

A critical element to a successful Group Project is clear, frequent and open communication with the client. Clients may be involved with their Bren 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. Students should schedule a meeting with the client (in person if the client is local or by teleconference if the client is not local) during the second week of spring quarter. 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. One of the external advisors may be another Bren faculty member. As the 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 the spring quarter.

Students may schedule additional meetings with the faculty advisor and client, as needed and appropriate.

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 work plan is not simply a paperwork-and-formatting chore to satisfy course requirements. The construction and articulation of this work plan are significant parts of the work required to solve the problem. The work plan is limited to 20 single-spaced pages. This page limit does not include the title page, executive summary, budget and justification, and references cited. A draft of the work plan is submitted to each group’s faculty advisor during spring quarter (see timeline for date). The revised work plan is due to the faculty advisors, 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 advisors, client and external advisors on the last day of spring quarter.

The work plan should include the following components:

a. Title page (Appendix III)
b. Executive summary (not to exceed one page)
c. Objectives
d. Significance of the project
e. Background and literature review
f. Technical approach to solving the problem

g. Data catalog

h. Deliverables

i. Milestones

j. Management plan

k. Budget (see Section 6 and examples in Appendix V) and budget justification

l. References cited

Description of work plan components

(a) Title page

The title page must include the following information:

- Title (no more than 10 words recommended)
- Names of group participants (in alphabetical order, recommended)
- Name of faculty advisors
- Bren School of Environmental Science & Management, University of California, Santa Barbara
- Date (month and year of degree conferral i.e. June 2015)

(b) Executive summary

The executive summary for your work plan should be no longer than one page. The executive summary should include background information, objectives, proposed approach, and anticipated results. The executive summary should be text only—do not include graphs or photos.

(c) Objectives

Write a short list of objectives based on the project proposal and the feedback you received during your meetings with your faculty advisor, client and student group. Typically, students will address one to three objectives for a Group Project. (If you find you have more than three objectives, they are probably too specific—you should move this detailed information to the technical approaches to solving the problem.) Keep your overarching objectives in mind throughout the project, and use them continually to monitor whether you are on-track or whether you need to re-orient the group’s 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) Background and literature review

Very early in the project, you should find out what is known about the topic that you are addressing. You need 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 you to critical datasets and useful scientific literature. You will also need to search for technical literature (journals, books, electronic resources) describing and explaining the problem and methods for studying it.

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

You will likely start your literature review with keyword searches (e.g. general concepts, species of chemical names, region or environment type) of publication databases such as the Web of Knowledge (WoK). If you are not familiar with these databases, take advantage of the training in library research techniques provided by UCSB Research Librarian Kristen LaBonte (klabonte@library.ucsb.edu). The librarian holds regular office hours in the Bren Communication Center (Bren Hall 3310) during the academic year. 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 the topic of your Group Project.

(f) Technical approach to solving the problem

Include an overall strategy and the specific tasks necessary to accomplish the objectives. While writing this section, ask penetrating questions, such as: What data will you need? Are such data available? If so, you should begin to acquire the data and prepare it for your analyses. If not, when and how will you get the data? If you do not already have the data, imagine that they have arrived—what will you do with them? Do some preliminary analysis on the available data. Describe the types of analyses that you will do to address the objectives. Use the preliminary analyses to describe the nature of the results. Will the results meet the objectives?

(g) Data catalog

In your data catalog, describe the data you will use to address the objectives. The data catalog should include, for each known or desired dataset, attributes such as: definition of the data; location of the data; what objective each dataset will address; and analytical methods that will be applied to evaluate each data set. Students should begin to gather data to populate the data catalog, identify data gaps, and develop a plan for addressing any gaps.

(h) Deliverables

There are two types of Group Project deliverables: (1) deliverables for your client and (2) academic deliverables required to complete ESM 401 and to fulfill the requirements of the MESM degree. In this section, list the products that you will create for your client. Also list your academic deliverables including work plan, academic defense presentation, final report, project brief, poster and final presentation.

Use the list of deliverables to gauge your progress. Some of the deliverables can be produced in the early stages of the project. You should continually keep the list of deliverables in mind when you are working on your project.

(i) Milestones

Your milestones will help you complete your Group Project by identifying key tasks and products that you will create as the project proceeds. In this section, you should list the dates by which you 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 you intend to complete drafts and final versions of each of your deliverables. At the end of each quarter, you should review and possibly re-organize the milestones.
(j) Management Plan

The 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. Each group is required to assign the roles of project manager (PM), data/computing manager (DM), financial manager (FM) and web manager (WM). 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 advisors, client and at least two external advisors with short descriptions of their roles. The faculty advisor will meet weekly with students; participate in spring and fall review meetings; review and provide feedback on the work plan, defense presentation, final report, project brief, poster and final presentation; and assign grades to students for ESM 401.

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 the opportunities for their engagement (e.g., sufficient time to review materials).

ii. Meeting structure. All students in the group will meet weekly to discuss and advance their progress toward project objectives. In addition, all students in the group will meet weekly with the faculty advisor to discuss progress and potential strategies to resolve any obstacles. If the faculty advisor is not available for one of the weekly meetings, then the group may engage them via email or teleconferencing. Students shall meet with the faculty advisor, client and external advisory committee once in spring quarter and once in fall quarter to evaluate progress and provide feedback. The students should describe in this section 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, client and external advisors. Describe how you will keep your client informed of your progress. It is critical that you always use the highest professional standards in your interactions with your faculty advisors, client and external advisors.

iv. Systems to ensure that critical tasks are completed on time. Please describe your group’s approach to tracking progress and completing milestones on time. How will you do this? Who will make sure that projects are getting done on time?

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. Describe your 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 in the management plan the expectations of the faculty advisor and students regarding faculty involvement and grading criteria.

vii. Conflict resolution process. Some of the tasks undertaken by the group may turn out to be unexpectedly difficult, or even impossible. It is important that a group member who encounters such a difficulty communicates the problem to other members promptly. 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. It is better to decide on ways of dealing with such problems before they arise.

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 experiencing difficulty, realizing that problems might arise for anybody. Methods for dealing with problems include peer review, and division or re-negotiation of responsibilities. If a resolution cannot be reached using these tools within a reasonable time (no longer than a month), then the group should engage the faculty advisor or the Group Project Coordinator. If a group member consistently fails to contribute at the expected level, the Project Manager should meet individually with the faculty advisor and/or the Group Project Coordinator 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 and/or Group Project Coordinator.

(k) Budget and Budget Justification

See Appendix V for a Sample Group Project budget. If the expenses are not standard operating costs, please provide a short justification for why the expenses are critical for the project.

(l) Reference Cited

Include a bibliography of references used to support your research. Information derived from other authors must be cited properly. The reference citations should be presented in a consistent format.

3. Work Plan Review

Before the end of 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 not be simply a congratulatory exercise, but rather 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 advisors
   c. Client
   d. Two or more external advisors (one may be another Bren faculty member)
Prior to 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 is able to participate in person. If any of the other participants are not able to attend the meeting, the students must engage them via teleconference.

Participants must be notified of the meeting date and time at least 2 weeks in advance. The group must work with the faculty advisor 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 room), and the students will lead the meeting with the faculty advisor as a participant.

Following the work plan review meeting, groups will submit to their faculty advisor 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 in the revised final work plan. The final work plan is due to the faculty advisors, client and external advisors by the last day of spring quarter.

4. Website

By the end of spring quarter, each group is required to create and maintain a public website. The website’s URL should be sent to the Group Project Coordinator by the end of spring quarter. The following information must be accessible through this website:

a. Names and email address for each group member, and a group email address
b. Faculty Advisor names and emails
c. Project title and abstract

5. Evaluations

Each student in the group must complete self and peer evaluations and submit them to the faculty advisor and the Group Project Coordinator by the last day of each quarter. The purpose of this evaluation is to encourage realistic reflection on the progress and functioning of the group, and to give students practice in careful and helpful evaluation of colleagues, which they may be required to do in the work place. This form can be found online at: [http://www.bren.ucsb.edu/services/student/documents/PeerandSelfEvaluationRevised_003.docx](http://www.bren.ucsb.edu/services/student/documents/PeerandSelfEvaluationRevised_003.docx).

6. Timeline, Milestones and Assignments for ESM 401A

The table below summarizes the deadlines, milestones, and assignments to be completed as part of ESM 401A Master’s Group Project. Additional information pertaining to ESM 401A is described in the preceding text; students are responsible for all information both in the table and text. All milestones for ESM 401A are required for all students pursuing Group Projects. In addition to the activities described in the table below, the Financial Manager (FM) is required to attend the workshop on the Group Project budgets and financial procedures. The Data/Computing Manager (DM) and Web Manager (WM) are required to attend the workshop on data and computing management offered by the Compute Team. The WM also should attend the web design workshops unless he or she already possesses the knowledge about how to design a website. The schedule of these special workshops will be announced in spring quarter.
<table>
<thead>
<tr>
<th>Week</th>
<th>Milestones</th>
<th>Assignments</th>
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<tbody>
<tr>
<td><strong>Mon, Mar 30</strong>&lt;br&gt;11:30 – 12:30 (BH 1414)&lt;br&gt;Group Project Kickoff Workshop</td>
<td>• Attend workshop: Learn about support available for Group Projects and how to create your work plan.</td>
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| **Wed, Apr 1**<br>11:30 – 12:30 (BH 1414)<br>Client Relations Workshop | • Attend workshop: Learn how to maintain clear, open and frequent communication with your client.  
• Maintain strong relationship with your client throughout the project! |
| **By Apr 3**: Schedule weekly meeting with faculty advisor and *meet in week 1* | • Schedule regular weekly meeting with faculty advisor.  
• Weekly meeting with faculty advisor should be in person, if possible, otherwise by email or teleconference  
• Meet with faculty advisor.  
• Discuss:  
  o Expectations for students  
  o Expectations for faculty advisor  
  o Project objectives  
  o What is feasible to complete within one year  
  o Level of academic performance needed to satisfy requirements of MESM program |
| **By Apr 3**: Schedule weekly meeting with all students in Group Project and *meet in week 1* | • Get to know the members of your Group Project. Plan something fun to do as a group!  
• Determine your group member roles:  
  o Project Manager (PM)  
  o Financial Manager (FM)  
  o Data/Computing Manager (DM)  
  o Web Manager (WM)  
• Students who have taken project management are encouraged to assume the role of PM.  
• FM, DM and WM are required to attend relevant workshops.  
• Report alias and PM, FM, DM and WM to Group Project Coordinator. |
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<tr>
<th>Week</th>
<th>Milestones</th>
<th>Assignments</th>
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<tr>
<td>Week 2</td>
<td>Hold scoping meeting with faculty advisor and Group Project client</td>
<td>• Develop a shared understanding of the project objectives and deliverables. &lt;br&gt;• Discuss the group management structure, and when and how the client would like to engage with the group. &lt;br&gt;• Discuss potential external advisory committee members. &lt;br&gt;• Following the meeting, document project objectives, describe project significance and produce short list of deliverables. &lt;br&gt;• Submit draft of Group Project management plan (Work Plan Section J) to faculty advisor.</td>
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<tr>
<td>Apr 6 – 10</td>
<td>Begin to develop approach to research</td>
<td>• Student and student/advisor meetings focus on approaches, research methods, data sources, and potential pilot analyses.</td>
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<tr>
<td>Weeks 2-6</td>
<td>Develop external advisory committee</td>
<td>• By Week 6, invite at least two people to serve as external advisors for the Group Project (one of the two or more external advisors may be another Bren faculty member).</td>
</tr>
<tr>
<td>Apr 6 – May 8</td>
<td>Refine research approach</td>
<td>• Student and student/advisor meetings refine approaches, research methods, data sources, and potential pilot analyses.</td>
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<tr>
<td>Week 3</td>
<td>Refine research approach</td>
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<tr>
<td>Apr 13 – 17</td>
<td><strong>Apr 17</strong>: Project Objectives, Significance, and Deliverables due</td>
<td>• Submit the following to faculty advisor: &lt;br&gt;  o Project objectives (Work Plan Section C) &lt;br&gt;  o Significance (Work Plan Section D) &lt;br&gt;  o Deliverables (Work Plan Section H)</td>
</tr>
<tr>
<td>Week 4</td>
<td><strong>Apr 24</strong>: Project Budget and Justification due</td>
<td>• Submit project budget and justification (Work Plan Section K) to faculty advisor.</td>
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<tr>
<td>Apr 20 – 24</td>
<td>Student and student/advisor meetings focus on research on methods, results and challenges of pilot analyses</td>
<td>• Develop background (Work Plan Section E) and technical approach (Work Plan Section F). &lt;br&gt;• Link proposed tasks to timeline in milestones (Work Plan Section I). &lt;br&gt;• Populate data catalog to support proposed analyses.</td>
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<tr>
<td>Weeks 4-6</td>
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<td>Apr 20 – May 8</td>
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<tr>
<td>Week</td>
<td>Milestones</td>
<td>Assignments</td>
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<td></td>
<td>Plan and schedule spring review meeting by Week 6</td>
<td>• Discuss with faculty advisor the goals, date, time, and potential participants for the spring review meeting.</td>
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<td><strong>May 8:</strong> Draft work plan due</td>
<td>• Schedule room for spring review meeting; plan for a teleconference if remote participation is necessary.</td>
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<td></td>
<td>• Invite client and external advisors to participate in spring review meeting.</td>
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<td>• Submit draft work plan to faculty advisor.</td>
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<tr>
<td>Week 7</td>
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<td>• Submit draft work plan to faculty advisor.</td>
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<tr>
<td>May 11 - 15</td>
<td><strong>May 18:</strong> Faculty advisor feedback due back to students</td>
<td>• Integrate faculty advisor’s feedback into draft work plan before or during week 8.</td>
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<td>Week 8</td>
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<td>• Send revised work plan to faculty advisor, client and external advisors.</td>
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<tr>
<td>May 18 – 22</td>
<td><strong>May 22:</strong> Revised work plan due</td>
<td>• Host work plan review meeting with students, faculty advisor, client and external advisors.</td>
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<td>• Following meeting, submit one-page summary of proceedings and feedback to faculty advisor.</td>
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<td>• Following meeting, integrate feedback into final work plan.</td>
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<tr>
<td>Weeks 8-10</td>
<td>Host spring work plan review meeting <strong>by June 5.</strong></td>
<td>• Submit Bren website link to Group Project Coordinator.</td>
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<tr>
<td>May 18 – Jun 5</td>
<td></td>
<td>• Submit final work plan to faculty advisor, client and external review committee.</td>
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<td></td>
<td><strong>June 12:</strong> Preliminary Group Project website due</td>
<td>• Implement work plan in the summer and coming academic year.</td>
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<td></td>
<td><strong>June 12:</strong> Final work plan due</td>
<td>• Submit self and peer evaluations to faculty advisor and Group Project Coordinator.</td>
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<tr>
<td></td>
<td><strong>June 12:</strong> Self and Peer Evaluations due</td>
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</table>
B. ESM 401B (Fall Quarter)

Students must enroll in ESM 401B Master’s Group Project for 4 units with their advisor in the fall quarter of the second year of study. The grade for ESM 401B will be IP (“in progress”) until the student completes ESM 401C in winter quarter. After a grade is issued for ESM 401C, the same grade will be applied to ESM 401B.

To meet the requirements of the MESM degree, students must earn a B or better in all of ESM 401.

Students shall meet twice a week in fall quarter with: (1) all group members and (2) all group members and the faculty advisors. 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 outline of their final report and complete as much of the writing of the final report as possible. Groups must also hold a fall quarter progress review meeting.

1. Fall Progress Review Meeting

In the fall quarter, each group must hold a progress review meeting. The purpose of the meeting is to report the group’s progress to your 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 include the following participants:
   a. All students in the group
   b. Faculty advisors
   c. Client
   d. External advisors

The fall quarter progress review meeting should cover the following:
   a. Review of project objectives
   b. Research completed
   c. Preliminary results
   d. Timeline for remaining tasks and deliverables

Students must coordinate with their faculty advisors regarding the date, participants, and agenda for the fall progress review meeting. Once a date has been selected, students must reserve a meeting room 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 advisors, client and external advisors with a meeting agenda and any supporting materials needed for a productive meeting.

At the beginning of the meeting, groups should present a brief review of project objectives. These may evolve over time as you learn more about the project. However, you must maintain open communication with your faculty advisors and client about these changes and be certain that they agree with the changes you propose. You should present the current results from your work and discuss your strategy for completing the remaining tasks and deliverables. The focus of the meeting should be to get your client and external advisors to share their feedback about how you can solve any problems that have emerged and complete your 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 advisors a summary of the feedback gathered during the meeting.

2. Outline for Final Report

At the end of fall quarter of the second year of study, each group submits an outline for the final report to the faculty advisors. 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, note the extent to which the section is completed, and/or any remaining obstacles to its completion (e.g., data availability.)

As an appendix to your outline, describe the work to be completed in the winter quarter and a timeline for remaining tasks and deliverables. Keep in mind that the draft final report is due to your faculty advisor at the end of the seventh week of winter quarter. Build in sufficient time for your group’s editor to review and revise the draft final report so that the various sections are written in a single, professional voice. Your draft final report should be your first best effort to present your work!

3. Evaluations

Each individual in the group must complete self and peer evaluations and submit them to their advisors and the Group Project Coordinator by the last day of classes in fall quarter. This form is online and can be found at: http://www.bren.ucsb.edu/services/student/documents/PeerandSelfEvaluationRevised_003.docx.

C. ESM 401C (Winter Quarter)

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

a. Draft final report (Week 7)
b. Group Project defense (Weeks 8 and 9)
c. Final report (End of winter quarter)

Groups also may need to complete other deliverables for their client (e.g., management plans or recommendations, tools or models, brochures, etc.) by the end of winter quarter.

Groups must complete these deliverables by the end of winter quarter to the satisfaction of their faculty advisor. Failure to do so will result in I (incomplete) or NG (No Grade) in ESM 401B and 401C until the work is completed.

1. Final Report

The final report is a complete discussion of the project’s objectives, significance, methodologies, results, and accomplishments. A high quality draft of the final report must be completed by mid-winter quarter (before the group’s defense) and the final report is due
at the end of winter quarter (see timeline for dates). The deadline for the final report is firm.

The final report should reflect the group’s ability to articulate in writing 1) the 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.

The final report typically includes the following:

- Title page
- Completed signature page
- Abstract (not to exceed 200 words)
- Executive summary (not to exceed 4 pages)
- Table of contents
- Project objectives and significance
- Background
- Methods
- Results
- Discussion
- Conclusions
- References

The faculty advisor should work with the students to establish an appropriate structure for the final report. (For example, a group may write a complete management plan for a client, and the plan itself may be the final report.) Regardless of the format appropriate for the project results, the final report must include: a title page, completed signature page, abstract, executive summary, and table of contents.

The final report should acknowledge any individuals or organizations that have supported the project in any significant way, professionally or financially. You must obtain their permission to be so acknowledged—they have the right not to be publicly associated with your 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 the faculty advisors before their report is finalized. It is strongly recommended that one group member should serve as the editor to review all sections of the final report to make sure that the report is presented in a single and professional voice. It is NOT acceptable to submit a draft report that cobbles together several sections created by different group members without at least one group member (the editor) having reviewed all sections to make sure that the style and level of detail are consistent throughout the report.

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

Final reports must not exceed 200 pages, and must be free of typographical, formatting, and other errors. Any deviations from the format guidelines must be approved by the faculty advisors prior to submission of the final report. All final reports must be formatted in compliance with “Bren School Filing Guidelines” (see Appendix II).

Once approved, each group must provide an electronic copy (PDF format) of the final report, including the completed signature page, to the Group Project Coordinator, faculty advisors, client, and external advisors. The final report will be posted to the Bren School website. The faculty advisors or client may also request hard copies of the report.

2. Project Defense

In weeks eight and nine of winter quarter (see timeline for dates), each group presents a project defense. By this time, groups should have completed their draft final report and submitted it to their faculty advisor for review. The defense is an opportunity for the group to present their approach to solving their client’s problem, and their recommendations and conclusions. The defense is an interim presentation to gather feedback from the faculty; it is not a final defense. At the time of the defense, the project is still underway and students should integrate feedback from the faculty reviewers to the extent possible.

For the project defense, groups will prepare a 20-25 minute presentation. The focus should be on the project’s significance, data, methods, and 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 15-20 minutes of questions and discussion. Groups should expect questions and criticism from their reviewers that may result in some revisions to their final reports. These faculty reviewers will likely not have been formally or informally involved in advising the project over the last year and hence can provide a new, fresh perspective. The faculty reviewers provide oral and/or written feedback to the group summarizing the strengths of the project and recommendations for improvement. Any written feedback, also should be sent to the group’s faculty advisor.

The project defense is a checkpoint in the Group Project process so that students receive feedback from other Bren faculty in addition to their advisors. The defense is an opportunity for students to share analytical approaches and interpretations so that others can learn about their work. As noted above, it is not expected that the two faculty reviewers will read the draft final report although some may choose to do so. It is the group’s responsibility during the defense to explain their work to the faculty reviewers and audience.

The entire Bren School community will be invited to attend the Master’s Project defense presentations. The Group Project Coordinator will make arrangements for this, including arranging rooms and setting the defense presentation schedule. As a courtesy, groups should invite their client and external advisors to attend the project defense.
D. ESM 401D (Spring Quarter)

In spring quarter of the second year of study, students must enroll in ESM 401D for 2 units with their faculty advisor. Students shall participate in meetings twice a week in spring quarter with: (1) all group members and (2) all group members and the faculty advisors. The following academic deliverables are due in spring quarter (see timeline for dates):

a. Project brief
b. Project poster
c. Final presentation

At the end of the fourth week of spring quarter, the Bren School hosts a special event featuring, public 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. Groups should personally send the Bren School’s electronic invitation to their clients, external advisors, and other professionals with whom they have interacted over the course of their project. Students may also extend invitations to personal guests.

1. Project Brief

The project brief is a concise summary of the group’s work, accessible to an intelligent general audience. The project brief should convey the importance of the Group Project, the problem tackled, and the solutions recommended. The project briefs are likely to be the most widely read product from your Group Project. Therefore, the brief should be polished, eye-catching, self-supporting (i.e., doesn’t require referring to the full report), substantive, technically impressive, and easy to read at multiple levels (a skim, a casual read, a careful read).

The project brief should impress most readers with the group’s accomplishments and give the readers a better understanding of the problem and its solution; some readers will then be motivated to read the full report. The brief should not only convey a sense of what the Group Project entailed but also impress the reader with the importance, significance and accomplishment of the group’s activities.

In composing a brief, convey the main points of the Group Project:

- Environmental problem
- Significance
- Project objectives
- Background
- Approach
- Results
- Conclusions
- Acknowledgments

Provide an introduction that conveys the problem, its importance, and your results. Use a combination of catchy figures, tables, graphics and text boxes to summarize the main points to engage your reader. Organize the information with headers, captions, and other signposts. Reiterate your main points in the conclusion, providing context and significance.

Use of color is appropriate for a policy brief, although the brief must be readable and intelligible if printed in black and white.

Each group must prepare a four-page project brief by early spring quarter. Briefs should be prepared using the template on the web at http://www.bren.ucsb.edu/services/student/documents/BRIEFTEMPLATE2.doc as a guide. You may change the template for the brief, but your must include the Bren logo, Bren
School of Environmental Science & Management, UCSB, Group Project members, faculty advisor, and client names at the top of each brief in a clear and easy-to-read format.

Use single-spacing for the body of the text. Use 11 point Garamond type (or something comparable), double columns, 0.75-inch margins, flush left and right, and 0.5 inch between columns. Section headings may be in larger type. References and footnotes are 8-point font and occur at the end of the brief. For references and footnotes, use the style found in Science Magazine.

A draft of the project brief must be submitted to the faculty advisors by the second Friday in spring quarter (see timeline for dates). The faculty advisors shall provide feedback on the project brief within one week. Students shall integrate the feedback and submit an electronic (PDF) copy of the final project brief to the faculty advisors and Group Project Coordinator by the end of the third week of spring quarter.

Groups should make enough hard copies for distribution at the Master’s Project Final Presentation event. This event typically attracts 300-400 people, so groups should have at least 50-100 copies. Print the brief on tabloid paper (11 inches x 17 inches) so you do not need to staple the brief. Inform the printer that you need the pages ordered appropriately for printing on this type of paper.

2. Project Poster

Each group must prepare a professional poster that summarizes the Group Project. The poster is a visual way to communicate your project objectives, significance and results.

Students should create unique poster designs, but every poster must include the Bren logo, the project title, names of all Group Project members and faculty advisor, and “Bren School of Environmental Science & Management, University of California, Santa Barbara” at the top of the poster. You also may include your client’s logo (if approved by the client) and name (in acknowledgements).

Similar to the project brief, the poster should include the following information:
- Environmental problem
- Significance
- Project objectives
- Background
- Approach
- Results
- Conclusions
- Acknowledgments

Information regarding Group Project posters is available on the Bren School website at: http://www.bren.ucsb.edu/services/computing/applications/group_project_info.html#POSTER

The poster should be at least 48 inches by 36 inches (but no larger than 72 inches by 48 inches) including borders and must be laminated so that it may be preserved for future use.

A draft of the project poster must be submitted to the faculty advisors by the second Friday in spring quarter (see timeline for dates). The faculty advisors shall provide feedback on the poster within a week or so. Students shall integrate the feedback and submit an electronic (PDF) copy of the final project poster to the faculty advisors and Group Project Coordinator by the end of the third week of spring quarter. Groups should also upload the final project poster to their Group Project website.
Students should contact a poster printer at least one month before the poster will be printed. Ask the printer what format they can print, how large the poster can be, and what resolution (dpi or ppi) is needed for any photos or other graphics. Tell the printer when the digital file will be sent or dropped off and when poster must be picked up. Posters should be printed no later than the third week of spring quarter so that any mistakes can be corrected. Posters must be laminated for durability.

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

3. Final Presentation

Master’s Project final presentations celebrate the completion of innovative, leading edge research and offer the opportunity for Bren MESM students to share their work with faculty, peers, potential employers, members of the community, family and friends. The focus of the final presentation is what the group found and why it matters. Final presentations have a huge impact on the reputation and prestige of the Bren School and, hence, on 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. Please contact the Career Development or Student Affairs staff with any questions about appropriate attire.

Each group’s presentation time slot is 40 minutes, which includes 20-25 minutes for the presentation and 15-20 minutes for questions. We recommend that no more than two group members present, since speaker transitions are disruptive and generally reduce the effectiveness of the presentation, especially when there is limited time. However, three group members can present if the group works on seamless transitions between the speakers to reduce disruption. 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.

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

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

Each project has one page in the Master’s Final Presentations program. An abstract, along with project title, members, advisor, and acknowledgements must be delivered electronically to the Group Project Coordinator the end of the first week of spring quarter (see timeline for date).
5. PROJECT EVALUATION

A. Faculty Evaluation of Students

Students must take all of ESM 401 for grades. Students will receive a letter grade for ESM 401A from the faculty advisor. Students will receive an “IP” (In Progress) grade for ESM 401B; a letter grade will be assigned for ESM 401C at the end of winter quarter. That letter grade will automatically be applied to ESM 401B. Students will receive a separate letter grade for ESM 401D from the faculty advisor. Each student in the group will receive a separate grade. 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 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. 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.

2. 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 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 spring quarter of the first year and 100% by the beginning of winter quarter of the second year.

4. Originality. Originality of analysis, problem formulation, and scope of work. This should be demonstrated throughout the project.

5. 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.

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

7. Punctuality. Students shall deliver intermediate and final products on schedule.

8. Knowledge and analytical thinking. Students shall gain knowledge about the 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. Group members shall demonstrate the highest level of professionalism in communications with each other, their
faculty advisor, client, external advisors and other stakeholders. All group members, particularly Project Managers, are expected to communicate concerns and issues with their faculty advisor in a timely manner.

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

B. Student Evaluations of Faculty Advisors

At the end of the project, all Group Project members should complete an evaluation for each Faculty Advisor and submit it to the Group Project Coordinator (see Appendix I). The Group Project Coordinator compiles all comments before distribution to the advisors to preserve anonymity.

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

6. CREATING A PROJECT BUDGET

Each Group Project is allotted $1,300 as a base budget, and up to an additional $200 of printing on Bren School printers. The Financial Manager (FM) for each group must attend the meeting with the Bren School’s Business Officer in 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 the following costs:

   a. Phone calls
   b. Final poster (laminated)
   c. Project brief
   d. Printed copy of final report (if requested by faculty advisor or client)

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

Group Project funds provided by the Bren School CANNOT be used (but see exception below) to pay for gifts, awards, and donations. Also, these funds CANNOT be used for food and beverages unless they are associated with travel that conforms to UC travel policies (http://www.bren.ucsb.edu/services/admin/travel_regulations.html). These funds can only be used for food and beverages associated with entertainment if 1) advance 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. The funds absolutely cannot be used to provide food and beverages for meetings that include only UC personnel and/or students. There are NO exceptions to this UC policy.

*Under special circumstances, the group can request an exception to policy for expenditure for a gift. However, request for exception to the policy must be made to the Bren School’s Business Officer in advance of the expenditure and approval is not guaranteed.
Bren School Purchasing Procedures:
http://www.bren.ucsb.edu/services/admin/purchasing_procedures.html

Bren School Financial Unit

Group project members will likely interact with some or all of the Bren School’s Financial Unit staff over the course of their project.

- The Bren School’s Business Officer is the primary contact for budget matters related to Group Projects. The Business Officer is Kim Fugate (kim@bren.ucsb.edu); Bren Hall 2516; 805-893-3540.

- The Bren School’s Financial Manager assists with budget matters related to Group Projects. The Financial Manager is Amy Burgard (amy@bren.ucsb.edu); Bren Hall 2514; 805-893-7457.

- The Bren School’s Personnel/Payroll & Travel Coordinator processes paperwork related to travel associated with Group Projects. The Personnel/Payroll & Travel Coordinator is Frank Soares (travel@bren.ucsb.edu); Bren Hall 2522; 805-893-6114.

- The Bren School’s Purchasing Coordinator processes purchase orders and reimbursements for items associated with Group Projects. The Purchasing Coordinator is Briny Litchfield (briny@bren.ucsb.edu); Bren Hall 2522; 805-893-6114.

Group Project Financial Managers

Each group must designate one person to serve as the group’s Financial Manager (FM). Groups must inform the Group Project Coordinator of the name of the Financial Manager by the first Friday of spring quarter of the first year of study. The list of student Financial Managers will be sent to the Bren School’s Business Officer and an informational/training meeting for student Financial Managers will be scheduled to go over policies and procedures.

A. Cost Centers

Each Group Project is assigned a Cost Center. A Cost Center is an account number in the School’s internal accounting system designated to track expenses. Each Cost Center number looks something like “GP087.” Group members must use this Cost Center to identify charges [Purchase Orders (PO), faxes, phone calls, petty cash receipts, lab fees, etc.] for appropriate allocation and/or reimbursement.

B. Expense Reports

The student Financial Manager will receive a monthly expense report, which indicates the budgetary activity within the group’s cost center, from the Bren School’s Business Officer. The student Financial Manager will be responsible for tracking, managing, communicating about, and updating the group’s budget. If expenses (phone, copies, travel, etc.) exceed the budgeted amount, the reimbursement requests will be returned, and the group members will be responsible for funding the activity. After receiving the monthly expense report, the group should reevaluate the budget to ensure that the project can be successfully completed within the given budgetary constraints.
C. Printing

Each group receives up to $200 of 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 of printing, then groups 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 account.

D. Copy Machine Code

Each Group Project receives a 5-digit copy code for the copy machines in the Bren School Student Mail Room (Bren Hall 2406) or the Student Commons. To make copies for research and/or group meetings, group members must enter the code into the copier. Copy expenses are automatically allocated to each group’s Cost Center.

E. Phone Authorization Code

Each Group Project receives a 5-digit phone authorization code, which allows members to make phone calls from any Bren Hall meeting room with an outside phone line. The telephones in the administrative offices are not available for student use. Instructions are below for how to make calls using your authorization code. Again, all phone expenses are automatically allocated to each group’s Cost Center.

F. Instructions for making Group Project phone calls:

- Pick up the phone handset
- Dial #55. You will hear a confirmation tone.
- Dial your 5 digit phone authorization code. You will hear a dial tone.
- Dial 9 (to get outside dial tone), followed by the number you wish to call
- If you hear an interrupted or “stutter” dial tone, reenter your Authorization Code.

G. Teleconferencing

The Bren School has a few speaker phones, which can be reserved and checked out for conference calling. These phones, along with a specific meeting room that has an outside phone line, can be scheduled by contacting scheduling@bren.ucsb.edu. When dialing the number, please use the phone call instructions above to ensure the calls you make on this phone will be charged to the appropriate group account. Incoming phone calls to the specific phone line will not be charged to the group’s Cost Center.

Another option for conference calling is Skype, which is set up in the Visitors Center. There is a Skype account set up for Group Project use, and the log-in information and password are written in the User’s Manual, which is kept in the black binder in the Visitors Center.

H. Library Copy Card

Each Group Project can purchase a library copy card to use at the Davidson Library. The expense for this card is automatically charged to each group’s Cost Center. Library Copy Cards are charged to the appropriate cost center and can be requested through the Bren School’s Purchasing Coordinator.

I. Visitor Parking Permits

Parking permits are available for your client, external advisors, etc. for parking on the UCSB campus to attend Group Project meetings. To obtain a permit, contact the Business Officer at least 72 hours before your visitor’s arrival, and provide the: 1) name of your Group
Project; 2) Group Project budget number; 3) name of your visitor and his/her affiliation; 4) date and time of arrival; and 5) location of your meeting (building and room number). Each permit costs $10/day and is charged to your Group Project budget. Reserved parking (where a parking spot is designated for the visitor near Bren Hall) is more expensive ($30/day) and should be used only when the visitor is an extremely important individual with a time constraint.

J. Purchase Orders

Groups should use a Purchase Order (PO) for purchasing project supplies and services, as opposed to paying out-of-pocket and being reimbursed (see below) if the vendor accepts purchase orders. PO’s may be obtained from the Purchasing Coordinator. Group Project Financial Managers should understand purchasing policies and procedures (http://www.bren.ucsb.edu/services/admin/purchasing_procedures.html) and ensure that their group abides by these rules.

K. Reimbursement

If a vendor does not accept a purchase order, group members may use personal funds and then submit a receipt to the Purchasing Coordinator to be reimbursed. When submitting receipts for reimbursement, please include the following:

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

L. 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 what 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 prior to the submission of the initial Group Project proposal. If a client does not pre-approve the budget it is unlikely the project with additional costs will 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 Andrew Krupa (andrew@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 acceptance of money.

If a gift is received to support a particular Group Project, then the creation of a special cost center for the group to access these funds will occur. If, at the end of the project, there are funds remaining, they will return to the Bren School general fund.

Bear 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 would be either managed by the agency or organization or directed to UCSB as a contract or grant.

**Grants/Contracts**
The other way that the University receives outside sources of funding is through grants and contracts. A contract or grant provides money 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 can receive funding to support Group Projects in the form of a gift. Please note that grants are contracts are required to provide for indirect (overhead) costs, which are 53% of the award, to be paid to the university. 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.

**7. COMPUTER RESOURCES**

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

A. Data Manager and Web Manager

Each group should designate a Data Manager (DM) who will have primary responsibility for maintaining the group’s shared online information. 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. The Data Manager will be authorized to install software on the group’s computer.

Each group should also designate a Web Manager (WM). The Web Manager will have primary responsibility for developing and maintaining the group’s website (see section 8L for more information). A workshop on web design will be offered in the spring quarter of the first year of study to assist the Web Manager, if needed.

B. Project Nickname

Each group is given a short nickname. The nickname is used to identify the project’s online artifacts (directories, mailing lists, etc.). The term “nickname”, wherever it appears in the remainder of this document, refers to this project nickname.

C. Group Email Alias

Groups make their own email lists and as many as needed. Bren requires all groups to make at least one alias, titled with their “nickname”, so the email is nickname@lists.bren.ucsb.edu. This will be used as a contact email for the entire group and should be accessible to Bren staff and outside parties. Groups can also make an internal list for only group members and/or their advisor.
D. Shared Directory
The Bren School Compute Team will create a “shared directory” for each Group Project. The shared directory will be named “nickname,” and will be housed on a Bren School Windows server (Babylon). This shared directory will be accessible from all Windows systems in the ESM domain via \babylon\GroupProjects2016GPSHARE. 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 “nickname.” The members of these Windows groups will be the student members of each group and their faculty advisors. Unless otherwise specified, all files and directories discussed in these guidelines will be owned by the group’s Data Manager. The Data Manager should assign, read, and execute permissions to the members of the group. The Data Manager and all group members are responsible for ensuring that the Windows group “ESM – System Admins” have “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. You 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 should be 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 document is a unique name for the document, assigned by the document’s lead author. It should be the lead author’s responsibility to synthesize the final version of the document for submission to the Data Manager to post for the 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 their 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.

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 Corporate Time account, which can be used to propose Group Project meetings, etc. Please remember that when using individual accounts, only the person proposing a meeting and inviting others to it may make changes to the meeting. Therefore, one person should be selected to schedule meetings. Corporate Time can be used to easily create a group by going to Tools -> Manage Groups. For more Corporate Time information, visit: http://www.bren.ucsb.edu/services/computing/applications/corporate_time.html
I. References (Optional)

Each group’s Data Manager may maintain a shared file of bibliographic references that will be incorporated into project reports, papers, etc. The Bren School currently supports EndNote bibliographic software, which can be installed upon request on a Group Project computer. Some groups choose to use an online citation manager; basic accounts are often free.

J. Public Website (Required)

Each group will be required to create a public website. All Group Project computers will have Dreamweaver installed; you may create the site using another application, if you prefer. The Compute Team can help you with some issues related to Dreamweaver but the scope is limited to support of the application, not web design and creation. A web design workshop will be offered in the spring quarter of the first year of study to provide instruction on website design, if needed, for Web Managers. There are also many useful online resources and Bren has a Dreamweaver training video that may be checked out from the Group Project Coordinator.

The Web Manager is responsible for attending training workshops, designing and maintaining the group’s website, and posting information in a timely manner. The Web Manager must verify all links on the group’s web pages when editing or adding information to them.

The index or home page of the group’s website must be named default.htm and will display at http://www.bren.ucsb.edu/~nickname. The group’s Web Manager is free to modify this page and additional content, subject to any formal Bren School policies regulating Bren School public web formats and content.

All Group Project websites will be publicly accessible at the url’s http://www.bren.ucsb.edu/~nickname and http://www2.bren.ucsb.edu/~nickname

Publishing access to the group’s webspace is available via sftp to sftp.bren.ucsb.edu.

Follow these instructions to configure Dreamweaver to use sftp as the means for publishing as follows (instructions also on the web):

1. Open Dreamweaver.
2. Got to Site → Manage Sites…
3. In the Manage Sites window, click on the site name, then click Edit… Or click New to define a new site.
4. In the Site Definition window, click on the Advanced tab.
5. In the left-hand column under Category, click Remote Info. In the Remote Info panel: Change the Access method to FTP. Use sftp.bren.ucsb.edu as the FTP host. For login information use your GROUP name as the login and your Bren password as the password. Change the Host Directory to ”public_html”. Click on the check box next to Use Secure FTP (SFTP). Click OK.

Functioning Bren website links must be sent to the Group Project Coordinator by the end of spring quarter of the first year of study (see timeline for date). Please note that if an application other than Dreamweaver is used, students are responsible for coordinating with the Compute Team to have redirect the page to the appropriate Bren web address.
8. SUPPORT AND LOGISTICS

Students shall read all email messages from Bren School staff regarding Group Project timeline, activities and deliverables.

The Group Project Coordinator Casey Hankey will distribute regular updates about Group Project timeline, activities and deliverables.

The Assistant Dean for Academic Programs Satie Airamé will teach several workshops to prepare students for academic defenses, project posters and final presentations. The Assistant Dean for Academic Programs also will communicate with students about opportunities for practicing final presentations with a communication tutor and on video.

The Media Liaison James Badham will send a “Save the Date” message for Master’s Project Final Presentations to the Bren community and all subscribers to BrenAlerts. He will send an invitation to the Bren community and all subscribers to BrenAlerts approximately 3-4 weeks before the Master’s Project Final Presentations. Students are encouraged to forward this invitation to clients, external advisors, family, friends, and others. The Media Liaison also will send an electronic reminder a few days before the event.

The Compute Team will send a message to students with information on loading PowerPoint presentations to computers in the rooms that will be used for Final Presentations.

The Finance Manager Amy Burgard will send information regarding Group Project funding and Group Project Accounts.

Groups have access to their Group Project funding until graduation.
Appendix I

Evaluations

Peer & Self Evaluation:
Peer & Self Evaluations (completed quarterly) are available online: http://www.bren.ucsb.edu/services/student/documents/PeerandSelfEvaluationRevised_003.docx

Faculty Evaluation:
The faculty evaluation will be submitted via Survey Monkey. The Group Project Coordinator will send a link to the survey during week five of spring quarter of the second year of study. Survey results will be kept anonymous, compiled in summary format, and sent to advisors.
Appendix II

Formatting & Filing Requirements for MESM Group Project Final Reports

Responsibility for the content of the Final Report
The group members and faculty advisors are responsible for everything contained in 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, acknowledgements, etc.)
- The main body of the report (including figures, charts or other inserted matter)
- The back matter (e.g., the notes and bibliography, appendices, etc.)

No changes may be made to the final report after the faculty advisors have signed the approval page.

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

Group Project title and signature page requirements

Title page requirements
Each Group Project final report must include a title page with an alphabetical listing (recommended) of the group participants and faculty advisor. In addition, the title page must have the following:

- 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 and faculty advisor
- Date

Bren staff will link each Group Project on the Bren School website by graduating year, with the authors of each project listed alphabetically.

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 may include an unsigned signature page in the .pdf of their final report. The unsigned signature page must include the typed names of students, in alphabetical order, followed by a section with names of faculty advisors, also in alphabetical order. “This Group Project is approved by:” must appear immediately above the faculty advisors’ names.

Group Project faculty advisors and project members must sign the original printed copy of the signature page, whether or not the signed page is included in the final report. All
signatures must be in black or blue ink; no other color ink is acceptable. The typed name of
the person signing must appear immediately to the right of or below the signature.

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

Students must submit the original, signed signature page to the Group Project Coordinator.

**Standards for Group Project titles**
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 necessary.

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

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

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

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

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

**Executive Summary**
The executive summary has more detail than the abstract and should be no longer than four
pages. Since most people will read the summary rather than the entire report, it should
include, at a minimum, background information and recommendations. The executive
summary should be text only; do not include graphs or photos.

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

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

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

LEFT = 1.25 inches (this margin is wide for binding requirements)
TOP = 1 inch from top of paper
RIGHT = 1 inch
BOTTOM = 1 inch from bottom of paper

Aside from page numbers, nothing must intrude into the margins. These minimum specifications also apply to all figures, charts, graphs, illustrations and appendices. When 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 of the edge of the page. Placement of page numbers must be consistent throughout the final report. Be careful to 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 accord with the following standards:

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

The preliminary pages following the title and approval pages must be numbered sequentially beginning with lower case Roman numeral “iii.” All preliminary pages are to be numbered using lower case Roman numerals (iii, iv, v, vi, etc.). This includes dedications; 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, italics, and specialized art fonts are not acceptable for the main body of the text.

Italics may be used for quotations, headings, labels, book titles, foreign words, scientific names or occasional emphasis. Fonts used 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.
Please note: Any deviations from the above guidelines must be approved by your faculty advisor in advance.

**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 Group Project Coordinator by the end of winter quarter (or when the faculty advisors approves the final report). This is the version that will be linked on the Bren School website.

The Group Project Coordinator will review each final report to verify that it meets the filing standards and will notify each group if it is acceptable or not.

**FORMATTING & FILING CHECKLIST**

<table>
<thead>
<tr>
<th>CHECKLIST AREA</th>
<th>BREN REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legibility</strong></td>
<td>Clear and legible font used.</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>8.5 x 11 inches (exceptions made for oversize or special materials).</td>
</tr>
<tr>
<td><strong>Number of copies</strong></td>
<td>One electronic (.pdf) copy of final report for Bren School</td>
</tr>
<tr>
<td><strong>Margins</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Page Number Placement</strong></td>
<td>Page numbers placed 0.75 inches from bottom edge of pages and consistently placed throughout the report.</td>
</tr>
<tr>
<td><strong>Pagination Standards</strong></td>
<td>Each page of final report numbered (except title and approval pages). No missing, blank, or duplicate numbers or pages. Lower case Roman numerals used on preliminary pages. Arabic numerals used to number text and back matter.</td>
</tr>
<tr>
<td><strong>Numbering of Preliminary Pages</strong></td>
<td>Title and approval pages counted but not numbered. Subsequent pages (e.g. the table of contents) numbered beginning with Roman numeral iii.</td>
</tr>
<tr>
<td><strong>Spacing Between Lines</strong></td>
<td>Text single spaced, except where conventional usage calls for only single spacing (title page, long quotations, etc.) or double spacing (between paragraphs and sections).</td>
</tr>
<tr>
<td><strong>Fonts &amp; Font Sizes</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Dates Used On Approval and Title Pages</strong></td>
<td>Month and year the faculty members will sign on approval and title page.</td>
</tr>
<tr>
<td><strong>Abstract</strong></td>
<td>Not to exceed 200 words</td>
</tr>
<tr>
<td><strong>Executive Summary</strong></td>
<td>Not to exceed 4 pages</td>
</tr>
<tr>
<td><strong>Standards Governing Titles and Taglines</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Faculty Signatures on Approval Pages</strong></td>
<td>Faculty advisors signatures in black or blue ink.</td>
</tr>
<tr>
<td><strong>Responsibility for Content</strong></td>
<td>Students and faculty advisors responsible for all content of the final report. Faculty advisors must review entire final report before signing.</td>
</tr>
</tbody>
</table>
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
MEMBER NAME

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

DATE
Appendix IV

Sample Final Report Signature Page

PROJECT TITLE

As authors of this Group Project report, we are proud to 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 mission of the Bren School of Environmental Science & Management is to produce professionals with unrivaled training in environmental science and management who will devote their unique skills to the diagnosis, assessment, mitigation, prevention, and remedy of the environmental problems of today and the future. A guiding principal of the School is that the analysis of environmental problems requires quantitative training in more than one discipline and an awareness of the physical, biological, social, political, and economic consequences that arise from scientific or technological decisions.

The 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

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone ($1/month, 12 months)</td>
<td>$22</td>
</tr>
<tr>
<td>$10 set up fee (Voicemail has an additional charge)</td>
<td></td>
</tr>
<tr>
<td>Estimated calls per month $15 for 9 months</td>
<td>$135</td>
</tr>
<tr>
<td>Photocopies</td>
<td>$93</td>
</tr>
<tr>
<td>Copy Card</td>
<td>$20</td>
</tr>
<tr>
<td>Software</td>
<td>$100</td>
</tr>
<tr>
<td>Presentation expenses</td>
<td>$50</td>
</tr>
<tr>
<td>Final poster production and lamination</td>
<td>$240</td>
</tr>
<tr>
<td>Conference attendance</td>
<td>$360</td>
</tr>
<tr>
<td>Administrative supplies</td>
<td>$20</td>
</tr>
<tr>
<td>Business cards</td>
<td>$60</td>
</tr>
<tr>
<td>Field trips</td>
<td>$200</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$1300</strong></td>
</tr>
<tr>
<td>Printing*</td>
<td></td>
</tr>
<tr>
<td>* Printing budget is fixed at $200 to an individual in the Group Project.</td>
<td></td>
</tr>
</tbody>
</table>