# ACEP Course Guide to Facilitating RCR Training Program Cases

## Revision History

### Version 2.0 (5/30/23)

Revised by Dan Johnson to:

* Change text to Markdown document format.
* Remove previously published course materials.

### Version 1.1 (2/28/14)

Revised by Dan Johnson to:

* Outline changes in class policies.
* Describe new case sequence.

### Version 1.0 (1/15/09)

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Reviewed and approved by ACEP Advisory Group.

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## Introduction to Course/Program

*The goal of this section of a local Guide is to orient new instructors to the course or program* ***overall****. Specifics come later.*

Welcome to the Scientific Professionalism Courses. This guide provides supporting information for facilitators working with students in the following courses.

* GRAD713 & –714: Scientific Professionalism and Integrity: Bioethics and Social Responsibility

Science and technology are daily changing the social environment we inhabit. Consequently, new ethical situations face us that did not exist a few short years ago. Part of our responsibility as teachers of graduate-level students is to provide them tools with which to navigate the complex and rapidly evolving academic and societal environments of their future. While this course will fulfill the ethics requirement of the graduate school, these courses aim to do more. Their goal is to help transform graduate students into scientists and engineers with a high commitment to professionalism and social responsibility, who are fully cognizant of their role obligations as scientists and engineers.

This guide is meant to be useful for both the experienced and inexperienced facilitator alike. As the facilitator, you are key to the success of these courses. You also have the best insight into how to improve the content and course process. Please do not hesitate to provide the Advisory Committee with feedback about how we might improve specific learning objectives, or the course overall.

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### Summary of Initial Analysis Data

Always document the initial analysis, so you have a point of comparison in the future. Focus on where students are now:\_

* What do students know already, not know?
* What motivation or affect issues are you concerned about?

Prior to launching the ACEP courses, we conducted a survey of institutional faculty and found:

* A majority did not know that trainees were required to complete RCR training.
* Less than 10% of principal investigators provided any such training.
* Essentially none of the local PIs’ training met the minimum standards established by the US Office of Research Integrity (ORI).

Students who do not have such training are ineligible to be placed on training grants from NIH, and may not apply for NRSA or other federal funding. This makes RCR training an immediate need for the WFUSM graduate programs.

### General Learning Outcomes, Performance Benchmarks

*Include what an average student can do when entering the course or program, and what the outcome goals are by the end.*

The students will use the Problem-Based Learning (PBL) method to identify discipline-specific and broad professional norms and obligations for the ethical practice of science. Content will include the norms and principles for the responsible conduct of scientific research such as data acquisition, management, sharing and ownership, publication practices, and responsible authorship. Emphasis will be placed on learning the tenets of responsible conduct of research, the current regulatory and legal climate, as well as the underlying norms and principles that shaped these concepts. Topics will include the student and advisor relationship, laboratory dynamics, collaboration in science, appropriate handling of data and appropriation of credit, plagiarism, conflicts of interest and financial responsibility. Students will acquire skills to recognize ethical issues in the practice of science, identify role obligations, and develop sound ethical reasoning to address these issues.

This course sequence has 7 general learning objectives:

* Acquire skills to recognize ethical issues in the practice of science
* Identify professional role obligations of scientists; such as graduate students, postdoctoral fellows, principal investigators and technicians
* Identify norms for the responsible conduct of scientific research, such as data acquisition, management, sharing and ownership, publication practices, and responsible authorship
* Develop sound moral reasoning to address ethical issues in the practice of science, such as identifying the points of ethical conflict, the principles, obligations, and consequences of a chosen course of action.
* Develop skills for effective group work, such as clear communication, facilitating other group members to contribute, focusing on key concepts, moving discussion forward, and constructively critiquing others’ concepts
* Develop self-directed learning skills, such as increasing their ability to identify key learning issues in a situation, seek out and acquire new content knowledge, identify appropriate resources and apply their knowledge in ways that help them resolve those learning issues.
* Gain specific factual content knowledge that relates to these issues and skills.

By the end of the 2-semester training program, all graduate students should be able to:

* Identify the 8 main RCR topics established by ORI;
* Describe two ethical reasoning frameworks for making difficult decisions regarding the 8 RCR topics;
* If given a complex scenario, apply one or both reasoning frameworks and develop a reasonable, ethically defensible response.

### Why Cases Are Being Used

*It is easy to forget why we use cases instead of another active learning modality. Providing the rationale for using cases also can increase new instructor buy-in.*

Ethical decision-making invariably occurs within a complex context of goals, personalities, and conflicting needs. Case scenarios are the closest approximation that trainees can engage with that brings all of these elements into play.

The course uses 9 cases (1 as a demonstration of process, 8 for training). Each case introduces at least 1 of the 9 core RCR issues, and reinforces at least 1 previously encountered issue. Each case requires student groups to identify:

* Key issues and stakeholders;
* The primary ethical question; and
* A reasoning framework for evaluating the scenario.

Students must defend their final decisions based on their chosen reasoning framework.

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## Course Mechanics

*The subsections here should address the most common logistical questions that new instructors might have about course operation or case mechanics. I have provided examples; adjust as needed.*

### Key Concepts, Content Knowledge, Skills For Instructors

#### Science Is a Culture

The ethical reasoning framework on which this course is based begins with the assumption that the scientific community is a culture. Its members share similar values, live and work together, and have obligations and responsibilities to each other. They also have certain expectations of each other. The scientific community has established a consensus set of norms that define how we expect each other to behave. In return for living by those norms, members of the scientific community gain certain rights and privileges. What exactly are those values? What are the norms? What are reasonable and unreasonable expectations? What is the penalty for violating the rules of the scientific community?

Most established scientists have had enough experience that they can provide fairly well–reasoned responses to the aforementioned questions. However, every new group of scientists in training must learn the norm and expectations for themselves. Sadly, more and more instances are coming to light of scientists who never learned how to act as a responsible member of the scientific community, or who intentionally disregarded scientific norms.

What we do as scientists potentially can have tremendous impact on other human beings (many of whom are not members of our community) and on the world in which we all live. This reality points to larger questions. What are scientists’ obligations to the rest of the world? How can we best decide what those obligations are? How do we know if we are (or are not) meeting them?

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#### What Exactly is Problem–Based Learning?

Many ethics courses use case studies. What makes our program unique is that students approach cases through a specific group instructional process called problem based learning (PBL). The PBL teaching method has been used by WFUSM since the 1980s to teach clinical science to medical students. It is also used in a variety of other settings at other institutions. Two fundamental ideas drive PBL: 1) a student learns best when they are active participants in the learning process, and take the lead in identifying and locating relevant information; and 2) students learn more effectively in groups than alone.

Details of the PBL process are explained in a later section. For now, it is enough to know that students in these courses work through case scenarios in stages. At each stage, students must determine what they know as facts, what they would like to know, and what pieces of information (called learning issues) they would need to learn to continue. As each case unfolds, a serious conflict related to RCR or some other role obligation of a scientist emerges. Students work as a group to identify the issues raised by the case and resolve them. In PBL, learning is largely self–directed. The facilitator is NOT the source of final authority. Rather, the facilitator guides the group during the learning process. Later sections describe in detail how a facilitator fulfills their role as “guide on the side” for the group.

PBL is a thoroughly validated instructional method. Time and again it has been shown to produce greater learning gains than didactic lectures. Yet those who have never experienced it often do not believe it will work. It is true that, when implemented improperly, it can be a disappointing experience. This guide explains how to use PBL correctly, and troubleshoot the most common problems. It is also true that facilitating a PBL course is more challenging for instructors than traditional didactic lectures. In a lecture, the instructor feels they have good control of the pace, direction, and types of learning that occur. Ironically, educational research indicates that, while the lecturing may feel more comfortable for the instructor, the amount their students learn is less, the information learned is retained for less time, and students are less able to use it. A PBL facilitator must be able to adapt, and let the learning process happen at its own pace. The reward is deeper and more useful learning.

One common concern of PBL novices is how to assess students. Fortunately, this format has been used for so long at WFUSM that many scoring rubrics and assessments have been developed and are available already. The last section of this guide provides an extensive explanation of how to evaluate students, including instructions for the rubric to be used. There also are sample scoring sheets in the back to use as a general guide.

This guide provides the general instructions you will need to begin facilitating classes in this course sequence. There will be additional information that relates to each specific case. This is summarized in the Facilitator Case Notes, which are posted online in the same location as the cases themselves. With time, the ideas and techniques contained in this document will tend to become second nature. The course developers do suggest that you look back at this document from time to time. The notes for each specific case should be reviewed every time you go in to lead a group through the discussion of that case.

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### Accessing the Cases & Facilitator Notes

Both are available on the institutional LMS. Facilitator notes are in a [separate module that is only available to instructors](www.google.com). If you cannot access them directly through this link, contact the [LMS administrator](www.google.com).

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### How Students & Facilitators Submit Evaluations

Links to case evaluations are embedded surveys in the LMS pages for each case. Completed evaluations automatically are posted back as LMS assignments.

* Student self-evaluations should be completed by midnight on the day that their small group meets.
* Facilitator evaluations of their groups are due within 5 days of the second group meeting.
* Student evaluations of facilitators are available immediately after the 2nd, 4th, and 6th cases end. Evaluations are due within 3 days, and cannot be submitted after 5 days.

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### Institutional Supports & Resources

Remind students that when they are finding information on their own, they have access to:

* [PubMed database - institutional pathway](www.google.com)
* [NIH Policies database](www.google.com)

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## Facilitating the Group Learning Process

*Focus here on what instructors should DO within the cases and course framework.*

### What is the Role of a Facilitator?

This section describes the ideal roles facilitators will play in the local program. Explain what facilitators SHOULD do, but at the same time stress that no facilitator will be perfect. In practice every facilitator shows strengths and weaknesses when they lead student groups. Like students, they grow and develop with time and experience.

The facilitator serves several complementary roles for these courses. The primary role of the facilitator is that of cognitive coach for the learning process. As a cognitive coach, the facilitator’s goal is to help students: \* Acquire process skills for self-directed and life-long learning \* Acquire essential reasoning skills \* Develop professional skills for negotiation, collaboration, mediation, and effective communication

As a cognitive coach, the effective facilitator demonstrates these characteristics:

* Monitors the group to ensure a balance of student contribution
* Monitors group functionality and group dynamics
* Encourages exploration of new content and learning issues
* Encourages discussion as a way for students to demonstrate content acquisition and conceptual understanding
* Uses numerous prompting questions such as “say more about that”, “tell me what you’re thinking”, “does everyone agree with that explanation”
* Uses few or no leading questions or directive statements that push the group to a defined conclusion.
* Encourages appropriate strategies for use of small group time.
* Makes suggestions that help students consider all available options.
* Acknowledges strengths and weaknesses of team members.
* Monitors for “team” functioning of all group members.

The use of small groups in these courses are designed specifically to:

* Promote discussion of prior knowledge
* Encourage cooperation, collaboration, mediation, and negotiation.
* Promote discussion for understanding
* Promote self-direction and interdependence
* Promote research and inquiry
* Promote moral reflection
* Foster reasoning and critical inquiry
* Foster discerning judgment of resources

As the group manager, the facilitator is responsible for holding students accountable, and ensuring they meet those responsibilities.

At other times, the facilitator’s role will be to serve as a role model. This would be analogous to a coach demonstrating the batting stance or sharing a story from his own playing days when a particular strategy was effective. As role model, the effective facilitator demonstrates these characteristics:

* Shares appropriate personal experiences that align with small group discussions.
* Provides experiential insights about how to go about “task” at hand.
* Role plays with students or for students when appropriate.
* Demonstrates strategies and approaches for dealing with “difficult issues”.

Occasionally it will be appropriate for the facilitator to take on the role of expert resource. This role should be used judiciously, such as when the group is stuck and you recognize that supplying a small amount of content would move the process along. As expert resource, the effective facilitator demonstrates these characteristics:

* Takes a 2 minute time-out to be “the expert” explaining a difficult or unfamiliar concept that is causing an obstacle to discussion.
* Refers students to specific content resources that they might miss.
* Delivers appropriate “mini-lectures” on occasion, which are never more than 5 minutes in length.
* Describes relevant experiences in your specialty area.

The specific content objectives within each case are outlined in a set of Facilitator Notes that you will receive prior to each case. Remember, the goal of the case format is for students to discover and explore the limits of their knowledge. Ask questions that encourage students to discover things for themselves.

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### Orienting Students to the Course

*How should the instructor introduce students to the case model?*

During the first group meeting each semester, remind students that:

* The core goals of biological and biomedical sciences include advancing human health and welfare, and providing responsible stewardship for the biosphere.
* The scientific community accepts the responsibility to act on behalf of the interests of all stakeholders, and judiciously anticipate and minimize harms.
* Core principles of practice include:
  + Objectivity. Honest assessment and minimization of the biases inherent in science.
  + Questioning current authoritative views or dogma in order to continue the process of advancing new knowledge.
  + Research freedom. Allowing ideas to flourish within the scientific community because wrong or true concepts will eventually be proven as such.
  + Reproducibility. Quality scientific research can be re-proven and is openly available to all qualified scientists to move knowledge forward.
  + Respect For Subjects. The highest ethical standards are upheld to respect all living things, with profound respect granted to human life and dignity.
  + Community. The scientific community itself is responsible for ensuring the integrity of science by proving the veracity of individual findings through peer review and reproducing experimental results, and by training and accrediting future scientists.
* These principles are linked to six virtues:
  + Duty. Scientists are committed to serve and guard humanity and seek to advance scientific understanding and respect for the truth.
  + Integrity. Scientists strive to be objective, fair, truthful, and accurate.
  + Accountability. Scientists are accountable to their profession and society.
  + Altruism. Scientists’ primary focus is the best interests of humanity and not self-interest, commercial interests, or the promotion of the industry of science.
  + Excellence. Scientists are committed to a lifestyle of learning and transmitting knowledge and skills.
  + Respect. Scientists treat associates and trainees with respect and credit their contributions.
* Our goal in the course is for students to:
  + Become acculturated in the norms, principles, values of science and virtues and obligations of scientists;
  + Gain skills to recognize ethical issues in practice of science and the ethical implications of science for society and learn sound ethical reasoning to address these issues; and
  + Engage in moral reflection and discussion of professional norms and obligations. This includes:
    - Moral sensitivity
    - Moral reasoning and judgment
    - Moral motivation and commitment, and
    - Moral character and competence.

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### Typical Workflow

*The subsections below assume a 2-session interrupted case. Adjust them to fit your case model.*

#### Before 1st Session

Cases 2 and 5 in the sequence have pre-class readings that should take ~1 hour to complete. The other cases do not have a pre-session assignment.

#### During 1st Session

Working together students will:

* Read and discuss 3-4 subsections of the case scenario
* Identify the key learning issues (LIs), missing information, ethical reasoning challenges
* Divide work among team to collect external information

#### Between Sessions

Working individually students will:

* Collect external information related to the LIs identified and assigned to them
* Draft a short summary to present to the rest of the group on Day 2
* Complete any other assignments made at the end of Day 1

#### During 2nd Session

Students will:

* Share the results of their individual searches
* Read, discuss the remainder of the case scenario
* Debrief the case. This includes:
  + Comparing the LIs that they identified with the list compiled by the case authors
  + Critique their group process skills
  + Identify areas for improving their group process skills

#### After 2nd Session

Each student will:

* Complete the follow-up assignment; usually this is a <1-page summary of the discussion from Day 2.
* If scheduled, complete a facilitator evaluation.

Facilitators will:

* Complete a student evaluation form for each member of their group.
* Post the evaluation forms to the LMS for students to review.

### What Effective Facilitators Do

The text below focuses on two very common issues. If you have any prior experiences to draw on, use this space to outline what is or is not effective with students locally.

#### Asking Effective Questions

A highly functional student group can become nearly autonomous; we have heard anecdotal reports of groups that worked so well together that they did not require significant input from their facilitators. However, a group must learn through practice how to work together this well. Until students become self–directing, the facilitators will need to guide their learning process. This is done by asking prompting questions.

Several examples of prompting questions are listed below. These questions are designed to engage students, facilitate the process, and keep students on track. Many of them can be used at more than one time.

* What would it be helpful to do/ know now?
* How do you know that?
* What does that have to do with this problem or situation?
* Does everyone agree with that statement?
* Tell me more about what you are thinking?
* Stu (or Sal, or whoever), you haven’t said anything lately, Do you agree/disagree? Why?
* Someone summarize where we are right now. Does everyone agree with that?

#### Other Facilitator Behaviors

The role of a facilitator in the learning process is quite different from the instructor’s role in a traditional class or lecture setting. The following hints and strategies are offered as suggestions for how to develop a good mindset for facilitation. Additional specific strategies for fostering a high level of group function are provided in the sections **Troubleshooting Small Groups**, and **Evaluating Small Groups**.

Positive behaviors that reinforce group process:

* Count to 10 before intervening.
* Make notes to yourself before intervening.
* Give students time to self-correct before you do it for them.
* Be in the problem with them not as an observer who knows how it turns out.
* Empathize; this is not what they are used to doing.
* Be patient and let them make mistakes–Learning involves failing. If we do not fail at something chances are we already knew it so are not learning from it.
* Help them discover how to correct mistakes or avoid the same ones in the future.
* Get excited with them, do be part of the group, do enjoy all the learning that will happen.

Negative behaviors to avoid:

* Don’t take the problem away from the students by being too directive.
* Don’t send messages that they are doing the “wrong” thing or thinking the “wrong” way.
* Don’t give them too much information because you are afraid they won’t find it.
* Don’t intervene as soon as you sense they are going off track. Remember, mistakes are okay.
* Don’t rush them, especially in the beginning.
* Don’t be afraid to say, “I don’t know that.”
* Don’t be afraid to say, “That sounds like a learning issue” instead of telling them the “answer”.
* Don’t become the expert in the group because you have the information they need to find.
* Don’t be afraid to be uncomfortable. Growth is uncomfortable, for you and for them.

### Troubleshooting Group Process

*Subsections in this part of the guide should focus on problems that you see most often locally. I provided examples of some common challenges.*

At times, an effective facilitator must intervene to insure their group functions at the highest level possible. Nearly 20 years of experience with small groups in WFUSM’s medical program has provided some insight into the most common trouble areas with small group function. They are:

* Student is quiet, doesn’t contribute
* Student talks too much, dominates
* Students get off track
* Students demonstrate inaccurate information/understanding
* Students resist some part of the process
* Students do not mesh well as a group

Effective coaching strategies for each of these situations are described below.

#### The Quiet Student

Ask a persistently quiet student questions directly but use prompters rather than content driven questions. For example, “Do you agree with that?” “Can you summarize what we know so far about the case?” Another tactic is to ask the quiet student to be the scribe, which engages them more directly in the process.

Tell the entire group that they cannot be evaluated unless they contribute and demonstrate in the sessions what they are learning outside the group.

Tell a quiet student that, while this is harder for some than others, it is a necessity. Scientists must communicate in groups all the time, demonstrating what they know and understand about research cases.

Make the group accountable for equal participation of all members. Let the other group members serve as mentors for the quiet individual. You do not have to be the only monitor.

#### The Dominating Student

Tell the group (or the individual in private) that more is not always better–all group members must have an equal chance to participate. Students who interfere with this process should be stopped. You must demonstrate how to do this appropriately and then make the students accountable for correcting or encouraging proper group behavior themselves. It may take more than one demonstration and they may have to be reminded.

Share with the dominating student that you realize that they know a lot of content, or are doing a lot of work outside of group but that you need for them to be responsible for enabling equal contributions among all the group members. Let them know that you will evaluate them accordingly.

Ask the dominant student to serve as a facilitator. This forces them to listen rather than talk incessantly.

#### Students Get Off Track

Ask students things like, “What does that have to do with this case/scenario.”

Require them to relate their conversations to the current problem or case. When they cannot, have them summarize the current problem, where they are with it, and where they are headed with it.

#### Students Demonstrate Inaccuracy

This problem is not more common with small groups, simply more revealed. When inaccuracy is detected, probe the student with questions such as, “Where did you come across that? What is your source? That’s not quite how I understand it–does everyone else understand it that way?”

Students can only go so far with inaccurate information in problem resolution. It is a more powerful learning situation when students must self-correct, rather than simply correcting them.

Most of us would agree that we learn a great deal from making mistakes. Let students make some, and gain insight from having done so.

#### Students Openly Resist the Group Learning Process

Students participate superficially or do not appear fully engaged in the group. This is not acceptable, and this displeasure should be communicated. You are there to ensure quality and integrity of group function, make this essential and value it in your evaluation of students accordingly. Part of the evaluation is the quality of student contribution. The group members should also be made accountable for communicating this to other group members when they feel it is insufficient.

There is a caveat to the proceeding issue. There are situations where students are much stronger written communicators than oral ones. If students need time to process ideas, they often are stronger writers. Do not penalize students who have different learning rates or learning styles, AS LONG AS THEY ARE CONTRIBUTING SUBSTANTIVELY to the group’s progress.

Students avoid listing learning issues, engaging the conversation, reporting on what they understand. Insist that they demonstrate all of these capabilities.

Students focus on a simple solution rather than understanding underlying mechanisms, issues that led to the complex situation. Want to avoid exploring the entire story, discussing the prevailing ethical arguments. Prompt them to explain issues besides the obvious ones, i.e., what goes on at the cellular level, home environment and compliance or maintenance, relate their own professional values to the ethics presented.

Engage the student much as you do the quiet student by having them scribe or by asking them prompting questions. Examples of prompting questions are provided at the end of this section.

Remind students that these cases are taken from real situations that members of ACEP have actually faced in their professional lives.

#### The Group Does Not Mesh Well

Students have professional and personal lives together outside of these courses. Social tensions, personality differences, lab conflicts, or any number of other factors originating outside of your group meetings can undermine its ability to work well together. If this occurs, use it as a mentoring opportunity.

First and foremost, do not ignore this problem. It will not self-correct. You must help the group overcome it.

Tell the students that our profession often requires us to work effectively in groups, regardless of our professional or personal differences. Learning to overcome these barriers in a positive way is an important professional skill.

Follow up on the preceding suggestion by helping students pinpoint specifically what is not working well for them and for the group.

You must model that it is important to determine what has to happen to function at a high level as a group. Teamwork is an important professional activity, and a poorly functioning team is not effective.

Have them figure out how to make this better for everyone.

### Evaluating Small Groups

*Outline the process by which students and facilitators will be evaluated.*

As a facilitator, you will be evaluating individual students for their small group participation and contributions. It will be easier to do this if you familiarize yourself with the evaluation criteria prior to starting the first session, or as soon after that as possible.

#### What Will be Evaluated?

In these courses the primary emphasis of evaluation is the learning process, not factual content gained. Both quality and quantity of contribution and participation are equally important. You will also be evaluating the function of the group as a whole; this will be included as part of each individual student’s grade.

In evaluating students, you should focus most of the attention on assessing their developmental progress, not their current proficiency. The students will probably start at nearly ground zero and demonstrate a reasonably sharp increase in skills over the time of the course. If you develop concerns about a student’s development in any one of the domains we are assessing, do not wait until the assessment meeting to provide feedback to the student; provide it as soon as is practically possible. If a student consistently causes you concern in the knowledge acquisition domain because they fail to demonstrate any new content during group discussions, tell them as soon as you are aware of it so that they can self-correct. If you are consistently concerned about a student’s communication style because they are abrupt or obstinate, describe this to them as early as you notice it.

Both the formative (in–progress) and summative (end of course) assessments of students are conducted using an Evaluation Form. There is no specific formative assessment process for the facilitators per se, only a final assessment. However, facilitators are encouraged to conduct formative assessments on their own to determine if there is anything they can do to improve the learning process for their students.

#### Formative Assessment Meetings

As each case is completed, the facilitators for the group should meet and use the current Student Evaluation Form to assess each student in the group. Both facilitators should agree on the score for each section on the form. Also, do not just mark scores; make comments that can help students improve. Include positive comments about what they do well too.

After completing the first case (or second case at the latest), the two facilitators should meet with each student individually for 10–15 minutes to assess the student’s progress towards the goals of the course. Before this meeting, have the students complete a Student Evaluation Form on themselves, and bring it with them to the meeting.

During the meeting, compare your scores for each student with their own self–scores. Discuss your reasons why you scored them as you did. It is particularly effective if you can provide specific examples to the students showing why the scores are what they are (regardless of whether they are high, mid-range, or low scores). This is easier to do if you keep brief notes about students’ actions during the sessions you facilitate. For example, if you describe to a student that they received a low score because the hypotheses they generate are too vague, give an example of a vague hypothesis they offered. Likewise, give specific reasons for their high score, such as they try to enlist all group members in group discussions, or they try to move the group along when they get stuck on something.

If the student has more specific problems (quiet, dominating, etc.) this meeting is a good time to address those issues. Make specific suggestions for improving in the future.

Suggest ways for students to improve their scores in each of the areas on the evaluation form. If they do receive a score of “4”, remind them that there is a sliding scale of expectation and the same level of performance in that domain may not result in a “4” score several weeks from now. The expectation is that they get better and better at each of the criteria throughout this component of the course.

#### The Summative Assessment (Grading) Process

At the end of EACH case, the two facilitators should determine the scores for each student using the Student Evaluation Form. A sample form is reproduced at the end of this document. Only one form should be submitted for each student, and the scores on the form should be a consensus between the facilitators.

Facilitators should complete these forms electronically immediately following the second session meeting of each case. These forms are made available on the eWake site following the completion of the second session discussion.

Two additional suggestions for using this form:

* Make copies of the completed form, and give them back to students at the start of the next case. This way, students know exactly how they are being scored. This is in addition to (not instead of) the formative assessment meeting.
* Keep another copy of the forms, along with any graded written assignments, for reference purposes.

**Caution:** do not be confused that the form lists numeric scores, even though the final course is graded “Satisfactory/Unsatisfactory.” The ACEP Course Development Committee opted to keep using the numeric scores because they allow students to see where they need to make improvements, before being assigned a final course grade.

## Grading Criteria and Format

*Include copies (with instructions) of the current evaluation documents for the course.*

Students’ grades for each case, and for the courses overall, are based on 4 criteria:

1. Problem Analysis, Moral Reflection and Reasoning
2. Self-Directed Learning, Knowledge Acquisition and Written Assignments
3. Individual Skills in Group Process
4. Group Process Development

Students are rated for Items 1-3 individually. One Group Process Development score is shared by all members of the group. Remember that one of the objectives of this course is developing teamwork skills. The single shared score makes all members of the group jointly responsible for its success.

Each of the four criteria is scored on a scale of “1, 2, 3, or 4.” A “4” is the highest score possible. Students and facilitators BOTH should understand that the evaluation form has been designed so that a score of “4” should be given out RARELY.

This grading format has caused considerable angst in the past among our students. Most got to graduate school because they consistently demonstrated the highest levels of academic performance. They expect their performance will continue to be given that rating. However, the standards are higher in graduate school, and the expectations are greater. The top score of “4” should be reserved for the most exceptional students, typically the top 10-15% of a class. This translates to 1 or fewer students per small group receiving an overall score of 3.6–4.0 for the course. Students may earn a “4” score in one domain, maybe even 2 without achieving an overall score of “4”.

Students are in the developmental phase of their career, and a score of “4” implies that they have little or no room for continued growth. We are aware that the occasional student will demonstrate all the characteristics that “wow” us and will legitimately earn that score. However, it should not be the norm. Similarly, group process will rarely reach the level of “4”.

Students know this already, but may need reminding: a final overall score of “3” is perfectly acceptable, as it indicates competent performance relative to the standards we have set. A score of “2.5” is sufficient to earn a grade of “Pass” for this course, which is all that is needed to continue in Graduate School.

If students ask, the numeric score for this course does not impact the overall GPA score in any way. It is provided as a way for students to compare their current developmental state to the ideal we hope to help them achieve.

### Form: Facilitator Evaluation of Students

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Case: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Facilitator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Problem Analysis, Reasoning and Moral Reflection

|  |  |
| --- | --- |
| Score | Criteria |
| 4 (A) | Consistently hones in on key questions and issues presented in each case, demonstrates ability to reflect on issues from many perspectives, and develops a reasoned justification for decisions that incorporates principles, values and consequences. Frequently proposes logical and feasible approaches to resolving an issue incorporating new knowledge appropriately into reasoning. |
| 3 (B) | Recognizes key issues more often than not. Shows some ability to reflect on issues from other’s perspectives and usually justifies decisions with principles, values and consequences. Proposes reasonable approaches to problem resolution and revises and re-ranks approaches in an acceptable fashion. |
| 2 (C) | Struggles to recognize key questions and issues, slow to understand social or cultural conflicts presented. Has trouble understanding rationale for resolutions presented by others in group. Shows uneven ability to reflect on issues from other’s perspectives and has difficulty in justifying decisions with principles, values and consequences, but shows progress, effort at improvement. |
| 1 (F) | Consistently fails to understand key issues or propose feasible solutions. Shows inability or unwillingness to empathize or understand other’s perspectives and rarely justifies decisions with principles, values and consequences. Shows little effort to improve. |
|  | Comments |

2. Self-Directed Learning, Knowledge Acquisition and Written Assignments

|  |  |
| --- | --- |
| Score | Criteria |
| 4 (A) | Information is consistently correct and in-depth; Strong comprehension and application of new information; often shows in-depth preparation; frequently regarded as the group expert; Written response is on time, concise, well-organized, and easy to read. |
| 3 (B) | Usually has appropriate and accurate resources; Acquires and incorporates new concepts accurately; prepared on second group meeting; acceptable knowledge, depth, and vocabulary; Response is on time and sufficiently organized to be understandable. |
| 2 (C) | Resources are few and poor; Struggles to keep up with group knowledge level, but progress has been made during phase; Written Response submitted up to 24 hrs late; poorly organized, points are difficult to understand. |
| 1 (F) | Seldom if ever prepared; Unable to rise to group level; cannot interact with depth; cannot use new knowledge; little or no progress; Response more than 24 hrs late or never submitted; minimal effort shown; poor organization. |
|  | Comments |

3. Individual Skills in Group Process

|  |  |
| --- | --- |
| Score | Criteria |
| 4 (A) | Leader in setting and maintaining agendas; very sensitive to peers, promotes involvement of other members of group; corrects other constructively. |
| 3 (B) | Conscious of time and agenda; shares information; accepted and trusted; adequate skill in expressing knowledge and opinions. |
| 2 (C) | Significant difficulty in expressing self or shares inappropriate information not germane to conversation; Not interested in group process, but has shown improvement; low leadership qualities. |
| 1 (F) | Chronically late or absent; disruptive and/or dominating or excessively shy without trying to contribute; uninterested in cooperation. |
|  | Comments |

4. Group Process Development (same grade for all students in group)

|  |  |
| --- | --- |
| Score | Criteria |
| 4 (A) | Builds consensus quickly and easily; focuses on key issues and identifies appropriate learning issues; action plans and problem resolutions usually achieved with confidence; completes tasks in the time allowed. |
| 3 (B) | Usually focused and decisive; mutual respect shown; goal-conscious; responds positively to feedback; critical concepts understood; usually appropriate learning issues for research between meetings. |
| 2 (C) | Unfocused and/or halting discussion; difficulty completing tasks in time allotted, but attempting to improve performance; Struggles to agree on relevant learning issues; poor knowledge growth of members; insufficient sharing of materials. |
| 1 (F) | Usually unable to arrive at a consensus; poor focus on critical issues; lack of mutual respect; unresponsive to feedback. |
|  | Comments |

### 

### Form: Student Evaluation of Facilitator

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Case: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Facilitator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Score | Description |
| 1 | Not helpful, ineffective |
| 2 | Somewhat unhelpful or ineffective |
| 3 | Somewhat helpful and effective |
| 4 | Helpful and effective |
| 5 | Very helpful, effective |

#### Group Process Facilitation

|  |  |  |
| --- | --- | --- |
| Item | Feature | Score |
| 1 | Demonstrates commitment to group by consistent attendance and engagement (e.g., keeping distractions to a minimum, remaining in room with group during the entire session, arriving on time) | 1 2 3 4 5 |
| 2 | Demonstrates adequate participation | 1 2 3 4 5 |
| 3 | Helps the group stay “on track” by asking guiding questions | 1 2 3 4 5 |
| 4 | Demonstrates equitable treatment of all students in the group | 1 2 3 4 5 |
| 5 | Suggests ways for the group to function optimally | 1 2 3 4 5 |
| 6 | Gives appropriate feedback to students in the group | 1 2 3 4 5 |

#### Content Facilitation

|  |  |  |
| --- | --- | --- |
| Item | Feature | Score |
| 7 | Helps group set appropriate learning issues and tasks between first and second sessions | 1 2 3 4 5 |
| 8 | Provides instructive and perceptive examples of professional standards and ethical considerations | 1 2 3 4 5 |
| 9 | Probes group for depth of knowledge in a supportive and non-threatening manner | 1 2 3 4 5 |

#### Additional Comments

Do you have other thoughts on your facilitator’s strengths and areas to improve?

### Form: Facilitator Evaluation of Course Overall

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Facilitator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| Score | Description |
| 1 | Not helpful, ineffective |
| 2 | Somewhat unhelpful or ineffective |
| 3 | Somewhat helpful and effective |
| 4 | Helpful and effective |
| 5 | Very helpful, effective |

#### Progress Towards Course Goals

|  |  |  |
| --- | --- | --- |
| Item | Feature | Score |
| 1 | Using the Problem Based Learning (PBL) method and discussing cases with small groups helped the students learn more than covering the topics with didactic lectures. | 1 2 3 4 5 |
| 2 | Discussing cases with the group enhanced student understanding of how to handle difficult situations and difficult decisions. | 1 2 3 4 5 |
| 3 | Hearing the viewpoints of the group members influenced the student’s consideration of these topics. | 1 2 3 4 5 |
| 4 | Being in a small group helped the students learn how to work collaboratively with team members. | 1 2 3 4 5 |
| 5 | The written assignments and subsequent discussions helped the students learn where and how to find credible resources. | 1 2 3 4 5 |
| 6 | Having to discuss cases with their peers helped the students to learn how to better explain and support their position. | 1 2 3 4 5 |
| 7 | Discussing cases increased the student’s knowledge of the expectations, responsibilities, and rights of a graduate student. | 1 2 3 4 5 |
| 8 | Discussing the cases increased student awareness of the roles and responsibilities and concerns of other personnel in science such as faculty members, principal investigators, postdocs, technicians. | 1 2 3 4 5 |
| 9 | Discussing the cases increased the student’s knowledge of the norms and expectations for how science should be practiced. | 1 2 3 4 5 |
| 10 | The cases increased student knowledge about student and advisor relationship, laboratory personnel dynamics, research collaborations, attribution of credit for work, and plagiarism. | 1 2 3 4 5 |

#### 

#### Open Response Questions

11. What case(s) or parts of the case(s) worked well and why?

12. What case(s) or parts of the case(s) were not useful or were frustrating and why?

13. What were the most useful and relevant thing(s) you learned from this course?

#### Additional Comments

### Form: Facilitator Evaluation of Students (Alternative Short Form)

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Case: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Facilitator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Reasoning Process

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | A quick problem-solver; proposes solid solutions, then revises easily with new evidence |
| COMPETENT (3) | Identifies problems, proposes, revises and re-ranks hyptheses in an acceptable fashion |
| CONCERN (2) | Struggles significantly in problem-solving, but shows progress and effort at improvement |
| UNACCEPTABLE (1) | Very poor skills; not an active participant; values facts over reasoning; not willing to improve |
|  | Comments |

2. Knowledge Acquisition

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | Strong comprehension and application of mechanisms; regarded as a group expert |
| COMPETENT (3) | Acquires most concepts accurately; prepared; acceptable knowledge, depth, vocabulary |
| CONCERN (2) | Struggles to keep up with group knowledge level, but progress has been made during phase |
| UNACCEPTABLE (1) | Unable to rise to group level; cannot interact with depth or use new knowledge; no progress |
|  | Comments |

3. Self-Directed Learning

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | Consistently new, correct, appropriate information; others appreciate and use the material |
| COMPETENT (3) | Appropriate, accurate resources; positive contributions; integrates new, existing knowledge |
| CONCERN (2) | Resources few, poor; offers little new material, but has improved effort and attitude |
| UNACCEPTABLE (1) | Seldom if ever prepared; relies solely on others; low interest in improvement |
|  | Comments |

4. Professionalism Development

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | Exceeds the development of professionalism expected of students at this level |
| COMPETENT (3) | Appropriate development of professionalism expected of students at this level |
| CONCERN (2) | Demonstrated some goals for professionalism, but needs more attention in some areas |
| UNACCEPTABLE (1) | Exhibited behaviors of unprofessionalism that require remediation |
|  | Comments |

5. Communication and Cooperation

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | Very effective proponent of concepts, knowledge, opinions; corrects others without offense |
| COMPETENT (3) | Adequate skill in expressing content knowledge and opinions; usually trusted by group |
| CONCERN (2) | Significant communication problems; not cooperative but improving |
| UNACCEPTABLE (1) | Inadequate skills and unconcerned; unable to gain group attention; commands little respect |
|  | Comments |

6. Individual Process Skills

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | Leader in setting and maintaining agendas; very sensitive to peers, promotes involvement |
| COMPETENT (3) | Not late; conscious of time and agenda; shares information; accepted and trusted |
| CONCERN (2) | Initially poor, not interested in process, but shows improvement; low leadership qualities |
| UNACCEPTABLE (1) | Chronically late or fails to attend; disruptive and/or dominating; uninterested in cooperation |
|  | Comments |

7. Group Process Development (same grade for all students in group)

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | Consensus builds quickly, easily; critical issues resolved with confidence; completes tasks |
| COMPETENT (3) | Usually focused and decisive; mutual respect shown; goal-conscious; responds to feedback |
| CONCERN (2) | Not smooth or focused, struggles to complete tasks; attempts better performance |
| UNACCEPTABLE (1) | Cannot create consensus; poor focus on critical issues; lack mutual respect; unresponsive |
|  | Comments |

8. Group Knowledge Acquisition (same grade for all students in group)

|  |  |
| --- | --- |
| Score | Criteria |
| HONORS (4) | Nearly always appropriate LI’s; substantial and universal growth in widely varied areas |
| COMPETENT (3) | Acceptable knowledge growth in most areas; gets critical concepts; usually appropriate LI’s |
| CONCERN (2) | Struggles to identify LI’s; poor knowledge development; little sharing of material |
| UNACCEPTABLE (1) | No discernable collective growth, especially in critical areas; no effort at sharing |
|  | Comments |

#### 

## Literature Resources

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## Appendix: Case Outlines

Provide short (<1 page) outlines summarizing:

* Learning goals
* End products
* Typical class flow, time required
* Individual instructors’ observations, notes on:
  + Common trouble spots
  + Possible adjustments, modifications