IDEAL
Institute for the Development of Excellence in Assessment Leadership

New Orleans, LA
January 11-14, 2016
GETTING STARTED

• Introductions
• Start/end time 8:30am-4:30pm
• Lunch
  • Breaks mid-morning/afternoon
• Exits/restrooms
• Pictures
• Phones
• Fidgets
• Internet access
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Who is in the room?

Level of Leadership

- Program: 18
- College: 8
- Institution: 4
YEARS OF ASSESSMENT LEADERSHIP

- Less than 1: 15
- 1-2: 10
- 3 or more: 5
PREFERRED MODE OF LEARNING

Most Pref  2  3  Least Pref

Lecture  Hands on  Group Work  Independent Study
NUMBER OF FACULTY WITH WHOM SCHOLAR WILL WORK
SETTING THE STAGE

• We have lots of expertise in this room to draw upon
• Format of the next couple of days should appeal to all learning preferences
• We have lots of things to uncover
• Role of feedback and improvement
• Issue Bin
SETTING THE STAGE

• Evaluation—every day
• Reflection/Daily Journal
• Capstone
• Professional Development Hours (30) to acquire or maintain your professional license or certification (check with your certifying body)
ISSUE BIN

Use the yellow sticky notes to record:

• Something that is still unclear to you
• A question related to program assessment that has come to mind but not yet been addressed
• Place sticky notes in the Issue Bin.

The facilitators will monitor the issue bins and respond after the breaks or at the end of the workshop
## ABET ACCREDITED PROGRAMS

(AlSO SEE DETAILEd ORGANIZATIONAL CHART IN WORKBOOK)

<table>
<thead>
<tr>
<th>ABET Program</th>
<th>Accredited Programs</th>
<th>Institutions</th>
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<tbody>
<tr>
<td>ETAC</td>
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<td>CAC</td>
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<td>ASAC</td>
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</table>
CONTINUOUS IMPROVEMENT

Better Evaluations
Faculty Assessment Training
Evaluator Training
Institution Expectations
Promote Accreditation
Promote CQI Everywhere
IDEAL, Workshops, Symposium
CHECK FOR UNDERSTANDING

What is a Check for Understanding:

• Feedback on learning
• Engage in some friendly competition
RULES OF ENGAGEMENT

• What is important as we spend the next few days together
• Expectations
  • Start/end on time
  • Everyone participates
  • No one person dominates the group
  • Take care of personal comfort needs
  • Have fun
IDEAL OVERVIEW

• Setting the context for program assessment – the big picture
• Understanding the terminology
• Program Educational Objectives
• Identifying the similarities/differences between classroom and program assessment
• Review and critique student outcomes
• Review and critique scoring rubrics
• Establishing inter-rater reliability
• Mapping the curriculum
IDEAL OVERVIEW

• Identifying assessment methods
• Writing/revising surveys
• Developing efficient and effective assessment processes
• Reporting results
• Review case study
• Assessment lessons learned
• Leadership
  • Context
  • Process
• Tools
• Progress
WHAT CAN WE DO AFTER THE INSTITUTE?

- Describe the process of program continuous improvement and the purpose of assessment
- Distinguish between program educational objectives and student outcomes
- Develop measurable student outcomes
- Write scoring rubrics
- Use curriculum mapping to plan assessment strategies and enhance evaluation decisions
WHAT CAN WE DO AFTER THE INSTITUTE?

• Evaluate a variety of assessment options
• Develop and/or Improve the quality of existing surveys
• Design efficient assessment processes
• Transform data into information for evidence-informed decision making
• Develop strategies for engaging others
• Facilitate the process to maximize results
ORGANIZING PREMISES

• Outcomes assessment is becoming/has become an international standard of quality
• In an era of accountability and transparency, it is not going away
• It is important for us to define anticipated student learning before someone else does it for us
• Because we are going to be mandated to provide the evidence, it is critical for us to develop assessment processes that are consistent with our institutional values and honor faculty priorities
BEST PRACTICES SHOULD BE CONSISTENT WITH PRINCIPLES OF LEARNING

• Learning occurs best when we build on what students already know
• Learning is an active process (importance of students active involvement in their own learning)
• Learners perform better when expectations for their learning is clear
• Learners perform better when they get feedback on their performance
  • Question: When I score student work, will the student know their areas of strength and weakness and what they need to do to improve?
PRINCIPLES OF PROGRAM/INSTITUTIONAL ASSESSMENT

• Student learning is cumulative over time
  • What students learn in one course, they use, practice, and develop in other courses.
• Focus of providing evidence of program/institutional assessment is on the cumulative effect of student learning and influences:
  • When to collect data
  • From whom to collect data
  • Interpretation of the results
CHALLENGES OF LEADING AND IMPLEMENTING PROGRAM ASSESSMENT

✓ Programs
  • Are at different places in the maturity of their assessment processes
  • Have different resources available to them (e.g., number of faculty, availability of assessment expertise, time)
  • Have faculty who are at different places in their understanding of assessment practice at the program level
Each program is unique


**HIERARCHY OF ASSESSMENT**

- **Knowledge**
- **Comprehension**
- **Application**
- **Analysis**
- **Synthesis**

**Evaluate**

**NOVICE**

- I can take what I have learned and put it in context.
- I begin to question what I hear, challenge assumptions and make independent decisions about effective practices for my program.

**INTERMEDIATE**

- Everyone who makes a presentation is an expert and I am a sponge.

**ADVANCED**

- I apply what I have learned and begin to analyze the effectiveness of my assessment processes.
THINK OF PROGRAM AS A SYSTEM
The Assessment Process
TAXONOMY OF APPROACHES TO ASSESSMENT

Level of Assessment (Who?)
- Individual
- Group

Purpose of Assessment (Why?)
- Learning/Teaching (Formative)
- Accountability (Summative)

Enables programs to be proactive:
- Identify problems and progress toward achieving the desired outcome

Enables programs to be reactive:
- Level of success at reaching the desired outcome

(Terenzini, JHE Nov/Dec 1989)
CHECK FOR UNDERSTANDING #1

1. Provide one principle of student learning

2. Assessment early in the program that allows you to be proactive is called _____________.

CHECK FOR UNDERSTANDING #1
Definitions
Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program.

Performance indicators are specific, measurable statements identifying student performance(s) required to meet the outcome; confirmable through evidence.

Assessment is one or more processes that identify, collect, and prepare data to evaluate the attainment of student outcomes. Effective assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the outcome being measured. Appropriate sampling methods may be used as part of an assessment process.

Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment processes. Evaluation determines the extent to which student outcomes are being attained. Evaluation results in decisions and actions regarding program improvement.

SPEAKING THE SAME LANGUAGE
<table>
<thead>
<tr>
<th>ABET TERMS</th>
<th>OTHER POSSIBLE TERMS FOR THE SAME CONCEPT</th>
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<td>Goals, Outcomes, Purpose, Mission, etc.</td>
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<tr>
<td>Student Outcomes</td>
<td>Goals, Objectives, Competencies, Standards, etc.</td>
</tr>
<tr>
<td>Performance Indicators</td>
<td>Performance Criteria, Competencies, Outcomes, Standards, Rubrics, Specifications, Metrics, etc.</td>
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<td>Assessment</td>
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ASSESSMENT FOR CONTINUOUS QUALITY IMPROVEMENT

How do all the pieces fit together?

- Review
- Mission
- Educational Practices and Strategies
- Performance Indicators
- Feedback (closing the loop)
- Objectives (PEOs)
- Assessment
- Constituents
- Student Outcomes
CONCEPTUAL MODEL FOR PROGRAM CONTINUOUS IMPROVEMENT

PROGRAM EDUCATIONAL OBJECTIVES

REVIEW

CONSTITUENTS

INSTITUTIONAL MISSION

STUDENT OUTCOMES

FEEDBACK (CLOSING THE LOOP)

PERFORMANCE INDICATORS

EDUCATIONAL PRACTICES AND STRATEGIES

EVALUATION

ASSESSMENT

ABET
• Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program’s constituencies.

PEO’s answer the question: *The application of graduates’ knowledge and skills for the attainment of what?*
CRITERION 2: PROGRAM EDUCATIONAL OBJECTIVES

Mission Statement
• Provide the institutional mission statement.

Program Educational Objectives
• List the program educational objectives and state where these can be found by the general public.

Consistency of the Program Educational Objectives with the Mission of the Institution
• Describe how the program educational objectives are consistent with the mission of the institution.
CRITERION 2: PROGRAM EDUCATIONAL OBJECTIVES

Program Constituencies

• List the program constituencies. Describe how the program educational objectives meet the needs of these constituencies.

Process for Revision of the Program Educational Objectives

• Describe the process that periodically reviews and revises, as necessary, the program educational objectives including how the program’s various constituencies are involved in this process. Include the results of this process and provide a description of any changes that were made to the program educational objectives and the timeline associated with those changes since the last general review.
Exercise: Critique

PROGRAM EDUCATIONAL OBJECTIVES
APPLICATION
PROGRAM EDUCATIONAL OBJECTIVES

Part A: 15 minutes

• Working independently, review the PEO’s and make a list of strengths and weaknesses (5 minutes). Document your findings using the table below the PEOs.
• Share your findings with the others on your team and develop one list of strengths and weaknesses (10 minutes)
  • Do they meet the ABET definition?
    • Broad statements
    • Based on the needs of the constituents
    • Describe what graduates are expected to attain within a few years of graduation
  • Are they well constructed?
  • Clearly defined?
    • Serve as thresholds for early career development
    • Relevant to the profession
    • Achievable and realistic
    • Align with constituent needs and institutional mission
APPLICATION
PROGRAM EDUCATIONAL OBJECTIVES

Part B: 10 minutes
• Where you find weaknesses, suggest changes to the PEOs. You can also add new PEOs if necessary. Based on your discussion, provide a bullet list of modified PEOs.

Part C: 10 minutes
• Report out using Nominal Group Process
PROGRAM EDUCATIONAL OBJECTIVES

- Where do they come from?
- Who decides what they are?
- What is their purpose?
- How do you know if they are still relevant?
- How do you keep them current?
ABET NO LONGER REQUIRES ASSESSMENT OF ATTAINMENT OF PROGRAM EDUCATIONAL OBJECTIVES

<table>
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<th>NEW DEFINITIONS</th>
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REVIEWING AND REVISING PROGRAM EDUCATIONAL OBJECTIVES

Input from Constituents

Review of Results by Faculty including alignment with student outcomes

Recommended Changes

Reviewed by Constituents

Recommended Program Educational Objectives

Additional changes recommended

Program Educational Objectives

No further changes

For example....
CRITERION 2 – COMMON ISSUES
PROGRAM EDUCATIONAL OBJECTIVES

- No indication as to who are the program’s constituents.
- Not published or readily accessible to the public.
- Not related to institutional mission or are inconsistent with the mission.
- Not consistent with the needs of the program’s various constituencies.
- Do not describe what graduates are expected to attain within a few years after graduation.
CRITERION 2 – COMMON ISSUES
PROGRAM EDUCATIONAL OBJECTIVES

• No evidence that the needs of the program’s constituents have been considered in the formulation of the program’s educational objectives.

• No consistent process to periodically review and revise the program educational objectives.

• No evidence of constituency involvement in the periodic review and revision of program educational objectives.
CHECK FOR UNDERSTANDING #2

1. Program educational objectives are based on the needs of the __________.
2. Do PEOs focus on demonstration of skills learned in college or what the graduate can do with them?
Similarities and Differences

COURSE ASSESSMENT AND PROGRAM ASSESSMENT
COURSE ASSESSMENT

CONCEPTS

Stress
Strain
Tensile strength
Ductility
Shear force
Bending moment
Angle of twist
Power transmission
Euler buckling
Crack growth
S-N curves

SUBJECT

TOPICS

Strength of Materials
Terminology
Material
Fatigue

NOT ALL EQUAL
COURSE ASSESSMENT

Course Context
- Subject matter
- Faculty member
- Pedagogy
- Students
- Facilities

SUBJECT
Strength of Materials

TERMINOLOGY
Material Properties
Beams
Torsion
Columns
Fatigue

CONCEPTS
Stress
Strain
Tensile strength
Ductility
Shear force
Bending moment
Angle of twist
Power transmission
Euler buckling
Crack growth
S-N curves

Assessment Focus
- Evaluate individual student performance (grades)
- Evaluate teaching effectiveness

Assessment Timeline: One semester/quarter
CHANGES TO BLOOM’S TAXONOMY

1956

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

2001

Remember
Understand
Apply
Analyze
Evaluate
Create

Noun  Verb

Great web reference: http://www.celt.iastate.edu/teaching/RevisedBlooms1.html
Great presentation: http://prezi.com/gb4mbz9vg7hg/blooms/

Anderson and Krathwohl, 2001
COURSE ASSESSMENT

• Cannot “cover” all topics related to subject

• Cannot “cover” all concepts related to each topic

• Decisions made based on context of course and characteristics of students

• Not all concepts are at the same performance (cognitive) level

• Assessment data taken at the concept level

• Assumptions related to performance on topics based on performance on concepts
PROGRAM ASSESSMENT

PROGRAM EDUCATIONAL OBJECTIVE

Graduates will be effective life-long learners including demonstrating the professional and ethical responsibilities

STUDENT OUTCOMES

1) Demonstrate knowledge of professional code of ethics.
2) Evaluate the ethical dimensions of a problem in the discipline.

PERFORMANCE INDICATORS

• Appreciation for and ability to pursue life-long learning
• Understanding of professional ethical responsibilities
<table>
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<tr>
<th>COURSE ASSESSMENT</th>
<th>PROGRAM ASSESSMENT</th>
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<td>• Cannot “cover” all Topics related to Subject</td>
<td>• Cannot “cover” all Outcomes related to Program Educational Objectives</td>
</tr>
<tr>
<td>• Cannot “cover” all Concepts related to each Topic</td>
<td>• Cannot “assess” all Performance Indicators related to each Outcome</td>
</tr>
<tr>
<td>• Decisions made based on context of course and characteristics of students</td>
<td>• Decisions made based on context of your program and characteristics of students</td>
</tr>
<tr>
<td>• Not all Concepts are at the same performance (cognitive) level</td>
<td>• Not all Performance Indicators are at the same expectation (cognitive) level</td>
</tr>
<tr>
<td>• Assessment data taken at the Concept level</td>
<td>• Assessment data taken at the Performance Indicator level</td>
</tr>
<tr>
<td>• Assumptions related to performance on Topics based on performance on Concepts</td>
<td>• Assumptions related to performance on Student Outcomes based on demonstration of Performance Indicators</td>
</tr>
</tbody>
</table>
PROGRAM ASSESSMENT

Student Outcomes:
- Technical
- Ethics
- Global
- Teams
- Cultural
- Communications Skills
- Contemporary Issues
CUMULATIVE EFFECT OF LEARNING OVER TIME

Satisfactory summative performance

 Unsatisfactory summative performance

YEAR 1  YEAR 2  YEAR 3  YEAR 4
COURSE ASSESSMENT

Assessment Focus
- Evaluate individual student performance (grades)
- Evaluate teaching effectiveness

Assessment Timeline: One semester/quarter
Institutional Context

Assessment Timeline (years)

CONTEXT FOR PROGRAM LEVEL ASSESSMENT

- Pre-college traits of students
- Coursework and Curricular Patterns
- Classroom Experience
- Out-of-Class Experiences
- Student Outcomes

Environmental Factors

Adapted from Terenzini et al. (1994, 1995)
GRADERS ≠ ASSESSMENT

• Grades have limited use for program assessment as they do not have diagnostic value.

• Grades can be a ‘flag,’ but do not point to specific strengths and weaknesses of what students know or can do.

• A student’s grade in a course or on a project or exam represents the student’s performance on an set of aggregated knowledge/skills.
DIFFERENCES BETWEEN CLASSROOM AND PROGRAM ASSESSMENT

✓ Degree of complexity
✓ Time span
✓ Accountability for the assessment process
✓ Cost
✓ Level of faculty buy-in
Institutional         Program            Course

Degree of interest/commitment

High
Medium
Low

Assessment Focus

Administration
Faculty

G. Rogers - ABET, Inc.
DIFFERENCES BETWEEN CLASSROOM AND PROGRAM ASSESSMENT

- Degree of complexity
- Time span
- Accountability for the assessment process
- Cost
- Level of faculty buy-in
- Level of precision of the measure
MEASUREMENT: NOT ALL ARE THE SAME
Assess Ourselves

Assess a Student
COURSE ASSESSMENT
(WRITING)

SUBJECT

Writing

TOPICS

Content
Organization
Style

CONCEPTS

Focus
Supporting Details
Coherence
Transitions
Voice
Word Choice
Sentence fluency
Conventions
<table>
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<tr>
<th>WRITING SKILLS RUBRIC</th>
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<tr>
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</tr>
<tr>
<td>Supporting Details</td>
<td>Provides ample supporting details</td>
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<td>Little or no sense of the person behind the words is evident</td>
</tr>
<tr>
<td><strong>Word Choice</strong></td>
<td>Uses effective language; makes engaging, appropriate word choices for audience &amp; purpose</td>
<td>Uses effective language &amp; appropriate word choices for intended audience &amp; purpose</td>
<td>Limited &amp; predictable vocabulary, perhaps not appropriate for intended audience &amp; purpose</td>
<td>Has a limited or inappropriate vocabulary for the intended audience &amp; purpose</td>
</tr>
<tr>
<td><strong>Sentence Fluency</strong></td>
<td>Sentences/phrases appropriately varied in length &amp; structure</td>
<td>Sentences/phrases somewhat varied in length &amp; structure</td>
<td>Shows limited variety in sentence length &amp; structure</td>
<td>Has little or no variety in sentence length &amp; structure</td>
</tr>
<tr>
<td><strong>Conventions</strong></td>
<td>Consistently follows the rules of Standard English for conventions</td>
<td>Generally follows the rules for Standard English for conventions</td>
<td>Generally does not follow the rules of Standard English for conventions</td>
<td>Does not follow the rules of Standard English for conventions</td>
</tr>
</tbody>
</table>
CHECK FOR UNDERSTANDING #3

1. Student outcomes are defined by the use of a few___________?

2. What are two differences between classroom and program assessment?
   - Degree of complexity
   - Time span
   - Accountability for the assessment process
   - Cost
   - Level of faculty buy-in
   - Level of precision of the measure
CONCEPTUAL MODEL FOR PROGRAM CONTINUOUS IMPROVEMENT
Measuring student abilities

STUDENT OUTCOMES
DEFINITION: STUDENT OUTCOMES

• From ABET Criteria:

Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviors that students acquire as they progress through the program.
Your program can:

- Adopt
- Adapt
- Add
PROGRAM EDUCATIONAL OBJECTIVES

INSTITUTIONAL MISSION

STUDENT OUTCOMES

PERFORMANCE INDICATORS

REVIEW

CONSTITUENTS
Students will demonstrate:

- an ability to identify, formulate, and solve complex problems
- the ability to function effectively on a team

Graduates will be able to demonstrate ability to solve complex problems and participate in a team-based environment.
Program Educational Objective:

Graduates will be able to demonstrate ability to solve complex problems and participate in a team-based environment.

Student Outcome:

Ability to function effectively on a team

- Makes contributions
- Takes responsibility
- Values other viewpoints

Performance Indicators:

- Researches and gathers information
- Fulfills duties of team roles
- Shares in work of team
- Listens to other teammates

G.Rogers--ABET, Inc.
Remember (Knowledge)
Understand (Comprehension)
Apply (Application)
Analyze
Evaluate
Create (Synthesize)
<table>
<thead>
<tr>
<th><strong>REMEMBER</strong></th>
<th><strong>UNDERSTAND</strong></th>
<th><strong>APPLY</strong></th>
<th><strong>ANALYZE</strong></th>
<th><strong>EVALUATE</strong></th>
<th><strong>CREATE</strong></th>
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<td>Classify</td>
<td>Apply</td>
<td>Analyze</td>
<td>Appraise</td>
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<td>Compare</td>
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<td>Argue</td>
<td>Assemble</td>
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<td>Describe</td>
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<td>Identify</td>
<td>Contrast</td>
<td>Classify</td>
<td>Compare</td>
<td>Compare</td>
<td>Compose</td>
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<tr>
<td>Label</td>
<td>Defend</td>
<td>Demonstrate</td>
<td>Contrast</td>
<td>Contrast</td>
<td>Create</td>
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<tr>
<td>List</td>
<td>Describe</td>
<td>Determine</td>
<td>Criticize</td>
<td>Criticize</td>
<td>Design</td>
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<tr>
<td>Match</td>
<td>Differentiate</td>
<td>Employ</td>
<td>Defend</td>
<td>Defend</td>
<td>Develop</td>
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<tr>
<td>Name</td>
<td>Distinguish</td>
<td>Examine</td>
<td>Discriminate</td>
<td>Discriminate</td>
<td>Formulate</td>
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<tr>
<td>Order</td>
<td>Estimate</td>
<td>Illustrate</td>
<td>Differentiate</td>
<td>Evaluate</td>
<td>Integrate</td>
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<tr>
<td>Outline</td>
<td>Explain</td>
<td>Interpret</td>
<td>Differentiate</td>
<td>Explain</td>
<td>Manage</td>
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<td>Extrapolate</td>
<td>Modify</td>
<td>Discriminate</td>
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<td>Generalize</td>
<td>Operate</td>
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<td>Relate</td>
<td>Interpolate</td>
<td>Practice</td>
<td>Examine</td>
<td>Judge</td>
<td>Prepare</td>
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<td>Repeat</td>
<td>Locate</td>
<td>Predict</td>
<td>Experiment</td>
<td>Measure</td>
<td>Prepare</td>
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<td>Reproduce</td>
<td>Paraphrase</td>
<td>Prepare</td>
<td>Indentify</td>
<td>Predict</td>
<td>Prescribe</td>
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<tr>
<td>Select</td>
<td>Predict</td>
<td>Produce</td>
<td>Infer</td>
<td>Rank</td>
<td>Produce</td>
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<td>Restructure</td>
<td>Inventory</td>
<td>Rate</td>
<td>Propose</td>
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<td>Tabulate</td>
<td>Review</td>
<td>Schedule</td>
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<td>Recommend</td>
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<td>Separate</td>
<td>Select</td>
<td>Synthesize</td>
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<td>Translate</td>
<td>Solve</td>
<td>Subdivide</td>
<td>Support</td>
<td>Write</td>
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<tr>
<td></td>
<td></td>
<td>Use</td>
<td>Test</td>
<td>Validate</td>
<td></td>
</tr>
</tbody>
</table>
STUDENT OUTCOMES SHOULD FOCUS ON:

“NOT EVERYTHING THAT COUNTS CAN BE MEASURED. NOT EVERYTHING THAT CAN BE MEASURED COUNTS.”

Adapted from quote by William Bruce Cameron
COMPARABLE TO LEADING INDICATORS

- Concept used in economics
- Identify specific characteristics of the economy that are significant indicators of the current state and predict future trends
  - Not everything
  - Those that have found to be the most critical in predicting how well the economy is doing
  - Several characteristics taken together
DEVELOPING PERFORMANCE INDICATORS

• Two essential parts
  • Subject content
    • Content that is the focus of instruction (e.g., steps of the design process, chemical reaction, scientific method)
  • Action verb
    • Direct students to a specific performance (e.g., “list,” “analyze,” “apply”)
WHAT TO AVOID IN WRITING PERFORMANCE INDICATORS:

• Verbs that describe feelings, emotions, thoughts or similar features that are not observable or measurable
  • E.g., appreciate, believe, know, learn, realize, think, understand.

• Descriptions of what the student will do
  • E.g., “write a paper on social issues,” “demonstrate how to use a laser guide . . .”

• REMEMBER: write performance indicators from the perspective of what the student should be able to demonstrate by means of the assessment
PERFORMANCE INDICATORS

• Students should be able to:
  • <<action verb>>
  • <<something>>
• Learner centered
• Specific action oriented
• Measurable
• Cognitively appropriate for intended level
• Value free--free from subjective values or standards as best you can (avoid use of words like “many,” “most,” “few,” “little”)
Application:

PERFORMANCE INDICATORS
1. An ability to communicate effectively (speaking) (EAC, CAC)
2. Knowledge of contemporary issues (EAC)
3. Recognition of the need for, and an ability to engage in continued professional development (EAC, CAC, ETAC)
4. Ability to identify, formulate and solve technical problems (EAC, CAC, ETAC)
5. Ability to use current techniques, skills, and tools necessary for practice (EAC, CAC)
6. Knowledge of the impact of ... solutions in a societal and global context (EAC, CAC)
SILENT BRAINSTORMING (5 MINUTES)

- Without talking to anyone at your table (silent) write as many performance indicators as possible for the outcome chosen by your table
- **ONLY ONE Per Post-it** (if you write five performance indicators, you will have 5 post-its)

Performance Indicators have two essential parts:

- **Subject Content**
  - Content that is the focus of instruction (e.g., steps of the design process, chemical reaction, scientific method)
- **Action verb**
  - Direct students to a specific performance (e.g., “list,” “analyze,” “apply”)

Tables p. 57-60
1. Place all your post-its on the flip-chart paper
2. Because your table team was working on the same outcome, many of the performance indicators will be similar
3. Move the post-its around and group all the ones with similar CONTENT together (do not group them by VERB)
4. After that is done, each grouping should represent one performance indicator “content”
5. Determine the appropriate level (action verb) for each grouping and label the grouping as one performance indicator
6. Use blank sheet at your table write the outcome and list the performance indicator (one per grouping) for the outcome
Report Out
IMPORTANCE OF WELL-STATED PERFORMANCE INDICATORS

- Provides faculty with clear understanding for implementation in the classroom
- Makes expectations explicit to students (great pedagogy)
- Focuses data collection
CRITERION 3 – COMMON ISSUES
STUDENT OUTCOMES

• Student outcomes are stated such that attainment is not measurable.
  (Note: Having student outcomes whose attainment is not measurable is not by itself a violation of any criterion, but if attainment of an outcome is not measurable then the extent to which it is attained may not be appropriately evaluated, as required in Criterion 4.)

• There is missing or incomplete justification as to how the student outcomes prepare graduates to attain the program educational objectives.
CHECK FOR UNDERSTANDING #4

1. What are the two essential parts of a performance indicator?
   a) Subject content
   b) Action verb

2. Since performance indicators are for knowledge, skills & attitudes needed at the time of graduation, they are written only for the higher cognitive levels (advanced) of learning. T or F
Scoring the level of student performance

RUBRICS
MEASURING PERFORMANCE

Rubrics
an introduction
WHAT IS A RUBRIC?

✓ "Rubrics" are a way of explicitly stating the expectations for student performance. They may lead to a grade or be part of the grading process but they are more specific, detailed, and disaggregated than a grade.

✓ Rubrics provide a description of each level of performance as to what is expected.

✓ The rubric provides those who have been assessed with clear information about how well they performed and a clear indication of what they need to accomplish in the future to better their performance.
<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>DESCRIPTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVELS OF PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsatisfactory</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator #1</th>
<th>Descriptor</th>
<th>Descriptor</th>
<th>Descriptor</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator #2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator #3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator #4</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>DIMENSIONS</td>
<td>COMMUNICATION SKILLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicator #1</td>
<td>Indicator #2</td>
<td>Indicator #3</td>
<td>Indicator #4</td>
</tr>
<tr>
<td><strong>Unsatisfactory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Developing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Satisfactory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exemplary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LEVELS OF PERFORMANCE**

**DESCRIPTORS**
WHAT IS A RUBRIC?

✓ Tool to score student performance in an assessment environment (e.g., oral presentation, local exam, performance observation, etc.)
✓ Can be used for both formative and summative purposes
✓ Defines expectations, and especially useful when dealing with processes or abstract concepts
✓ Provides a common "language" to help faculty and students talk about expected learning
✓ Increases reliability of the assessment when using multiple raters
PURPOSE OF RUBRIC

• How you are going to use the results drives decisions about rubrics
  • What kind of feedback do you want?
    • Individual student/program
    • General/specific
  • How will data be collected?
    • Formative/summative
    • Developmental over time/single point in time
  • For whom?
    • Student
    • Faculty member
    • Program
HOW ARE YOU GOING TO USE RESULTS?

• Do you want general information about student performance?
• Do you want specific information about student competence?
TYPES OF RUBRICS

• **Holistic** rubric provides general information about student learning
  • Raters make judgments by forming an overall impression of a performance and matching it to the **best fit** from among the descriptions on the performance levels
  • Each category of the performance levels describes performance on several performance indicators
**WORK EFFECTIVELY IN TEAMS**

<table>
<thead>
<tr>
<th>UNSATISFACTORY</th>
<th>DEVELOPING</th>
<th>SATISFACTORY</th>
<th>EXEMPLARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Does not collect any information that relates to the topic.</td>
<td>• Collects some information relate to the topic but incomplete.</td>
<td>• Collects basic information related the topic.</td>
<td>• Collects a great deal of information which goes beyond the basics.</td>
</tr>
<tr>
<td>• Does not perform any duties of assigned team role.</td>
<td>• Inconsistently performs duties that are assigned</td>
<td>• Performs duties that are assigned</td>
<td>• Performs all duties assigned and actively assists others.</td>
</tr>
<tr>
<td>• Always relies on others to do the work.</td>
<td>• Rarely does the assigned work--often needs reminding.</td>
<td>• Usually does the assigned work--rarely needs reminding.</td>
<td>• Always does the assigned work without having to be reminded.</td>
</tr>
<tr>
<td>• Is always talking--never allows anyone else to speak.</td>
<td>• Usually doing most of the talking--rarely allows others to speak.</td>
<td>• Listens most of the time</td>
<td>• Consistently listens and responds to others appropriately.</td>
</tr>
</tbody>
</table>
EXAMPLE OF RESULTS - FORMATIVE

WORK EFFECTIVELY IN TEAMS

50%

HOLISTIC

Percent of students who perform at or above satisfactory level
n=60 (population)
ANALYTIC RUBRIC

• Analytic performance levels focus on specific dimensions of student performance related to performance indicators.
• Dimensions are presented in separate categories and rated individually.
• Each performance indicator is rated separately.
## WORK EFFECTIVELY IN TEAMS

<table>
<thead>
<tr>
<th></th>
<th>UNSATISFACTORY</th>
<th>DEVELOPING</th>
<th>SATISFACTORY</th>
<th>EXEMPLARY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESEARCH &amp; GATHER INFORMATION</strong></td>
<td>Does not collect any information that relates to the topic.</td>
<td>Collects very little information--some relates to the topic.</td>
<td>Collects some basic information--most relates to the topic.</td>
<td>Collects a great deal of information--all relates to the topic.</td>
</tr>
<tr>
<td><strong>FULFILL TEAM ROLE'S DUTIES</strong></td>
<td>Does not perform any duties of assigned team role.</td>
<td>Performs very few duties.</td>
<td>Performs nearly all duties.</td>
<td>Performs all duties of assigned team role.</td>
</tr>
<tr>
<td><strong>SHARE IN WORK OF TEAM</strong></td>
<td>Always relies on others to do the work.</td>
<td>Rarely does the assigned work--often needs reminding.</td>
<td>Usually does the assigned work--rarely needs reminding.</td>
<td>Always does the assigned work without having to be reminded.</td>
</tr>
<tr>
<td><strong>LISTEN TO OTHER TEAMMATES</strong></td>
<td>Is always talking--never allows anyone else to speak.</td>
<td>Usually doing most of the talking--rarely allows others to speak.</td>
<td>Listens, but sometimes talks too much.</td>
<td>Listens and speaks a fair amount.</td>
</tr>
</tbody>
</table>
TEAMING SKILLS - FORMATIVE

PERCENT STUDENTS WITH SATISFACTORY OR EXEMPLARY PERFORMANCE
N=60 (POPULATION)

- **Research Information**: 55%
- **Fulfill Roles**: 38%
- **Share in work**: 25%
- **Listening**: 81%
TEAMING SKILLS - FORMATIVE
n=60 (population)

Researches/gathers info:
- Unsatisfactory: 15%
- Developing: 30%
- Satisfactory: 49%
- Exemplary: 6%

Fulfills roles and duties:
- Unsatisfactory: 6%
- Developing: 32%
- Satisfactory: 34%
- Exemplary: 4%

Shares in work:
- Unsatisfactory: 25%
- Developing: 30%
- Satisfactory: 25%
- Exemplary: 25%

Listens:
- Unsatisfactory: 77%
- Developing: 19%
- Satisfactory: 4%
- Exemplary: 4%
STRENGTH OF ANALYTIC RUBRIC

• Provides information about relative strengths and weaknesses of student performance related to an outcome.
• Provides detailed feedback which can be used to promote curricular enhancements
• Useful for assessment of abstract concepts or processes
• Provides students an opportunity to self-assess their understanding or performance
GENERIC OR TASK-SPECIFIC RUBRIC

• Generic
  • Rubric that can be used across similar performances (used across all communication tasks or problem-solving tasks)

• Task-specific
  • Rubric which is designed for a single task
  • Cannot be generalized across a wide variety of student work
HOW MANY LEVELS OF PERFORMANCE?

- Consider both the nature of the performance and purpose of scoring
- Recommend 3 to 5 levels to describe student achievement at a single point in time
- If focused on developmental curriculum (growth over time) more performance levels are needed (i.e., 6-???)
- More performance levels, the more difficult it is to get inter-rater reliability
DEVELOPING RUBRICS

• Be clear about how the rubric is to be used
  • Program assessment
  • Individual student assessment
• Analytic/Holistic
  • For process improvement, analytic rubric provides information that can be used to focus instruction in areas of weakness
• Can use student work as a guide in developing rubric
• Start with extremes and work toward middle
• Pilot test
• Rubric development is a process
<table>
<thead>
<tr>
<th>NAME</th>
<th>ATTRIBUTE</th>
<th>UNSATISFACTORY</th>
<th>DEVELOPING</th>
<th>SATISFACTORY</th>
<th>EXEMPLARY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Produces research information for team</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Demonstrates understanding of team roles when assigned</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Shares in the work of the team</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Demonstrates good listening skills</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Produces research information for team</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
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<tr>
<td></td>
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<td></td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Demonstrates good listening skills</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
OUTCOME: WORK EFFECTIVELY IN TEAMS

<table>
<thead>
<tr>
<th>STUDENT</th>
<th>RESEARCH &amp; GATHER INFORMATION</th>
<th>FULFILL TEAM ROLE’S DUTIES</th>
<th>SHARE IN WORK OF TEAM</th>
<th>LISTEN TO OTHER TEAMMATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marcus Wellman</td>
<td>Satisfactory</td>
<td>Satisfactory</td>
<td>Satisfactory</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>David Willison</td>
<td>Satisfactory</td>
<td>Developing</td>
<td>Satisfactory</td>
<td>Exemplary</td>
</tr>
<tr>
<td>Dottie Whitely</td>
<td>Developing</td>
<td>Developing</td>
<td>Developing</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>...n...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
DEVELOPING RUBRICS

Identify characteristics you want to be demonstrated by students (Performance Indicators)

Determine how rubric will be used: Analytic or holistic, generic or task-specific

Write narrative description for each performance level (satisfactory, excellent, etc.)

Complete rubric by describing extremes and working towards the middle

Review usefulness of rubric after applying and revise (if necessary)
TEST YOUR KNOWLEDGE: ANALYTIC OR HOLISTIC?
<table>
<thead>
<tr>
<th>TEAMWORK RUBRIC</th>
<th>Modified from: <a href="http://edweb.sdsu.edu/triton/tidepoolunit/Rubrics/collrubric.html">http://edweb.sdsu.edu/triton/tidepoolunit/Rubrics/collrubric.html</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTRIBUTE</strong></td>
<td><strong>BEGINNING</strong></td>
</tr>
<tr>
<td><strong>RESEARCH &amp; GATHER INFORMATION</strong></td>
<td>Does not collect any information that relates to the topic.</td>
</tr>
<tr>
<td><strong>SHARE INFORMATION</strong></td>
<td>Does not relay any information to teammates.</td>
</tr>
<tr>
<td><strong>BE PUNCTUAL</strong></td>
<td>Does not hand in any assignments.</td>
</tr>
<tr>
<td><strong>TAKE RESPONSIBILITY</strong></td>
<td><strong>BEGINNING</strong></td>
</tr>
<tr>
<td><strong>FULFILL TEAM ROLE’S DUTIES</strong></td>
<td>Does not perform any duties of assigned team role.</td>
</tr>
<tr>
<td><strong>PARTICIPATE IN SCIENCE CONFERENCE</strong></td>
<td>Does not speak during the science conference.</td>
</tr>
<tr>
<td><strong>SHARE EQUALLY</strong></td>
<td>Always relies on others to do the work.</td>
</tr>
<tr>
<td><strong>VALUE OTHERS’ VIEWPOINTS</strong></td>
<td><strong>BEGINNING</strong></td>
</tr>
<tr>
<td><strong>LISTEN TO OTHER TEAMMATES</strong></td>
<td>Is always talking--never allows anyone else to speak.</td>
</tr>
<tr>
<td><strong>MAKE FAIR DECISIONS</strong></td>
<td>Usually wants to have things their way.</td>
</tr>
</tbody>
</table>
TEAMWORK RUBRIC

4 – THOROUGH UNDERSTANDING
• Consistently and actively works towards group goals
• Is sensitive to the feelings and learning needs of all group members
• Willingly accepts and fulfills individual role within the group
• Consistently and actively contributes knowledge, opinions, and skills
• Values the knowledge, opinion, and skills of all group members and encourages their contribution

3 – GOOD UNDERSTANDING
• Works toward group goals without prompting
• Accepts and fulfills individual role within the group
• Contributes knowledge, opinions, and skills without prompting
• Shows sensitivity to the feelings of others
• Willingly participates in needed changes

2 – SATISFACTORY UNDERSTANDING
• Works toward group goals with occasional prompting
• Contributes to the group with occasional prompting
• Shows sensitivity to the feelings of others
• Participates in needed changes, with occasional prompting

1 – NEEDS IMPROVEMENT
• Works toward group goals only when prompted
• Contributes to the group only when prompted
• Needs occasional reminders to be sensitive to the feelings of others
• Participates in needed changes when prompted and encouraged
<table>
<thead>
<tr>
<th>Performance</th>
<th>4 Exceeds Standard</th>
<th>3 Meets Standard</th>
<th>2 Progressing to Standard</th>
<th>1 Below Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>Maintains exceptional focus on the topic</td>
<td>Maintains consistent focus on the topic</td>
<td>Provides inconsistent focus on the topic</td>
<td>Demonstrates little or no focus</td>
</tr>
<tr>
<td>Supporting Details</td>
<td>Provides ample supporting details</td>
<td>Provides adequate supporting details</td>
<td>Includes some details, but may include extraneous or loosely related material</td>
<td>Includes inconsistent or few details which may interfere with the meaning of the text</td>
</tr>
<tr>
<td>Coherence</td>
<td>Organizational pattern is logical; conveys completeness &amp; wholeness</td>
<td>Organizational pattern is logical; conveys completeness &amp; wholeness with few lapses</td>
<td>Achieves little completeness &amp; wholeness though organization attempted</td>
<td>Little evidence of organization or any sense of wholeness &amp; completeness</td>
</tr>
<tr>
<td>Transitions</td>
<td>Provides transitions that eloquently serve to connect ideas</td>
<td>Provides transitions which serve to connect ideas</td>
<td>Provides transitions which are weak or inconsistent</td>
<td>Uses poor transitions or fails to provide transitions</td>
</tr>
<tr>
<td>Style</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice</td>
<td>Allows the reader to sense the person behind the words</td>
<td>Some sense of the person behind the words is evident</td>
<td>Some sense of the person behind the words is attempted</td>
<td>Little or no sense of the person behind the words is evident</td>
</tr>
<tr>
<td>Word Choice</td>
<td>Uses effective language; makes engaging, appropriate word choices for audience &amp; purpose</td>
<td>Uses effective language &amp; appropriate word choices for intended audience &amp; purpose</td>
<td>Limited &amp; predictable vocabulary, perhaps not appropriate for intended audience &amp; purpose</td>
<td>Has a limited or inappropriate vocabulary for the intended audience &amp; purpose</td>
</tr>
<tr>
<td>Sentence Fluency</td>
<td>Sentences/phrases appropriately varied in length &amp; structure</td>
<td>Sentences/phrases somewhat varied in length &amp; structure</td>
<td>Shows limited variety in sentence length &amp; structure</td>
<td>Has little or no variety in sentence length &amp; structure</td>
</tr>
<tr>
<td>Conventions</td>
<td>Consistently follows the rules of Standard English for conventions</td>
<td>Generally follows the rules for Standard English for conventions</td>
<td>Generally does not follow the rules of Standard English for conventions</td>
<td>Does not follow the rules of Standard English for conventions</td>
</tr>
</tbody>
</table>
Exercise: Develop scoring rubric for your performance indicators

RUBRICS
EXERCISE: RUBRIC DEVELOPMENT

1. Using the outcome and performance indicators you developed, create an analytic rubric (at least four rows).

2. Determine how many performance levels

3. Description of each performance level

4. Remember:
   - How will the findings be used?
   - Will findings enable you to make decisions about program improvement?

5. Use the template provided (p.87) or develop your own using a blank piece of paper. Please use a dark pen or fine-tipped marker so that your rubric can be seen using the document camera.
REPORT OUT
Inter-rater Reliability
EXERCISE: RUBRIC CALIBRATION PROCESS

Constraints:

• We are not grading the papers.
• Do not change the rubrics.
• Don’t overthink your assessment.
• Think globally about the student work and about the learning skill.
  • Start with the high rubric level and work backward. Ask what is missing here that would bring the score down?
• N/A may exist (meaning that the work is not intended to meet a particular performance indicator).
CALIBRATION TRAINING*

Scoring Steps and Exercise Content: (p.90-93)
Review the two rubrics to familiarize yourself with structure, language, performance levels

1. Practice round: Read the sample of student work
   • Read and score for all relevant performance indicators

2. Connect specific points of evidence in the sample with each performance indicator at the appropriate level
EXERCISE: PILOT TESTING YOUR SCORING RUBRICS

An assignment was given asking students to write a one-page executive summary of a paper on the ethical considerations of the Bhopal disaster. This assignment was designed to demonstrate the student outcomes: Professionalism and ethics, and writing. (p 92-93)

**Step 1: Individual Assessment (10 minutes)**
Each person at the table should read through the executive summary and, using the rubrics provided, assess how well the students demonstrate the student outcomes.

**Step 2: Group Discussion (15 minutes)**
Using your flip chart, record the scores for each group member. Discuss and record the group’s observations, insights and questions.
EXERCISE: PILOT TESTING YOUR SCORING RUBRICS

Step 3: Group Assessment (10 minutes)
As a group, re-read the student summary and rate it using the rubrics. Each score should be reached by consensus. Record any instances where a consensus cannot be reached or any additional comments you consider pertinent.

Step 4: Rubric Critique (15) – Discuss how useful the rubrics were. Things to consider are: Number of performance levels; Description of performance levels; Language specificity (was the language vague or subjective); Usefulness: does the scoring provide useful information about areas of strength and the need for improvement
• What recommendations would you make to improve the rubrics?
### Outcome 5: An understanding of professional and ethical responsibility

<table>
<thead>
<tr>
<th>Element</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of professional codes of ethics</td>
<td>Is aware of ethical standards such as the Code of Professional Engineers, the AIChE Code of Ethics, and the MSU Students' Rights and Responsibilities Document.</td>
<td>Applies relevant aspects of codes of ethics when considering possible alternative decisions or solutions.</td>
<td>Evaluates and judges a situation and possible future actions in terms of the appropriate professional code of ethics</td>
</tr>
<tr>
<td>Demonstration of professional and ethical behavior in the classroom [attendance, punctuality, professional work submitted]</td>
<td>Student work is unprofessional; has been caught plagiarizing</td>
<td>Student work is acceptable, but not exemplary; usually punctual with fairly regular class attendance</td>
<td>Is punctual, professional, and collegial; attends classes regularly; work is always neat and professional</td>
</tr>
<tr>
<td>Recognition of ethical dilemmas and use of appropriate tools and strategies in making ethical decisions [recognizes when an issue is an ethical decision versus a purely technical decision, applies decision-making models, applies code(s) of ethics].</td>
<td>Identifies a situation in which ethical issues are concerned for the individual or other stakeholder, but does not use ethical decision-making models or uses personal opinion to evaluate</td>
<td>Applies ethical decision-making tools when considering an ethical issue in engineering or in the campus classroom; simple approach with little or no additional analysis</td>
<td>Identifies an ethical dilemma; evaluates and judges a situation using appropriate analysis tools; evaluates the credibility of information to make sound judgments</td>
</tr>
<tr>
<td>Rubric Criteria</td>
<td>Not Acceptable</td>
<td>Below Expectations</td>
<td>Meets Expectations</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Articulation of Ideas - Written</td>
<td>Student does not articulate ideas at all</td>
<td>Text rambles, points made are only understood with repeated reading, and key points are not organized</td>
<td>Articulates ideas, but writing is somewhat disjointed and difficult to follow</td>
</tr>
<tr>
<td>Professionalism - Written</td>
<td>The writing style is inappropriate for the audience and for the assignment</td>
<td>Style is informal or inappropriate, jargon is used, improper voice, tense, etc.</td>
<td>Usually uses good professional writing style</td>
</tr>
<tr>
<td>Organization - Written</td>
<td>Little or no structure or organization is used</td>
<td>Some structure and organization is used</td>
<td>Generally organized well but paragraphs combine multiple thoughts or sections are not identified clearly</td>
</tr>
<tr>
<td>Quality of Work - Written</td>
<td>Work is not presented neatly; spelling/grammar errors present throughout more than 1/3rd of the paper</td>
<td>Work is not neatly presented throughout; one or two spelling/grammar errors per page</td>
<td>Written work is usually presented neatly and professionally; grammar and spelling are usually correct</td>
</tr>
<tr>
<td>Use of Graphs/Tables/etc. - Written</td>
<td>No Figures, Tables, or graphics are used at all</td>
<td>Figures, Tables, and Graphics are present but are flawed (axes mislabeled, no data points, etc.)</td>
<td>Use of Figures, Tables, and Graphics that are usually in the proper format</td>
</tr>
</tbody>
</table>
REPORT OUT
ADAPTING PROGRAM RUBRICS FOR USE IN THE CLASSROOM
# ABILITY TO WRITE EFFECTIVELY

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Exceeds standard</th>
<th>Meets standard</th>
<th>Progressing to standard</th>
<th>Below standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting details provided to enhance the quality of the report</td>
<td>Provides clarity of detail that enhances the overall quality of the report</td>
<td>Provides details that support the premise of the report</td>
<td>Includes some details, but also includes extraneous or loosely related material</td>
<td>Includes inconsistent or few details which interfere with the meaning of the text</td>
</tr>
<tr>
<td>Logical organizational pattern is used to enhance understanding</td>
<td>Organizational pattern is logical and conveys completeness &amp; wholeness</td>
<td>Organizational pattern is logical with only minor lapses in coherence</td>
<td>Evidence of organization but completeness &amp; wholeness is lacking</td>
<td>Little evidence of organization or any sense of wholeness &amp; completeness</td>
</tr>
<tr>
<td>Use of language is appropriate to audience</td>
<td>Uses effective language; makes engaging, appropriate word choices for audience &amp; purpose</td>
<td>Uses effective language &amp; appropriate word choices for intended audience &amp; purpose</td>
<td>Limited &amp; predictable vocabulary, perhaps not appropriate for intended audience &amp; purpose</td>
<td>Has a limited or inappropriate vocabulary for the intended audience &amp; purpose</td>
</tr>
<tr>
<td>Application of the rules of standard English</td>
<td>Consistently follows the rules of Standard English for conventions</td>
<td>Basically follows the rules for Standard English for conventions with only minor lapses</td>
<td>Generally does not follow the rules of Standard English for conventions</td>
<td>Does not follow the rules of Standard English for conventions</td>
</tr>
<tr>
<td>Use of graphics that enhance audience understanding</td>
<td>Figures and charts are appropriate, clear and communicate well to the audience</td>
<td>Figures and charts are clear and, with a few exceptions, communicate clearly to the audience.</td>
<td>Figures and charts are used to communicate but lack consistency in format and style detracting from audience understanding.</td>
<td>Figures and charts are missing or have deficiencies in formatting and style which detract from understanding.</td>
</tr>
<tr>
<td>Writing Skills Rubric (Revised)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Exceeds Standard</th>
<th>Meets Standard</th>
<th>Progressing to Standard</th>
<th>Below Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Supporting Details</td>
<td>Provides ample supporting details</td>
<td>Provides adequate supporting details</td>
<td>Includes some details, but may include extraneous or loosely related material</td>
</tr>
<tr>
<td>Organization</td>
<td>Coherence</td>
<td>Organizational pattern is logical; conveys completeness &amp; wholeness</td>
<td>Organizational pattern is logical; conveys completeness &amp; wholeness with few lapses</td>
<td>Achieves little completeness &amp; wholeness though organization attempted</td>
</tr>
<tr>
<td>Style</td>
<td>Audience</td>
<td>Uses effective language; makes engaging, appropriate word choices for audience &amp; purpose</td>
<td>Uses effective language &amp; appropriate word choices for intended audience &amp; purpose</td>
<td>Limited &amp; predictable vocabulary, perhaps not appropriate for intended audience &amp; purpose</td>
</tr>
<tr>
<td></td>
<td>Conventions</td>
<td>Consistently follows the rules of Standard English for conventions</td>
<td>Generally follows the rules for Standard English for conventions</td>
<td>Generally does not follow the rules of Standard English for conventions</td>
</tr>
<tr>
<td></td>
<td>Graphics</td>
<td>Figures and charts are appropriate, clear and communicate well to the audience</td>
<td>Figures and charts are clear and, with a few exceptions, communicate clearly to the audience</td>
<td>Figures and charts are used to communicate but lack consistency in format and style, detracting from audience understanding</td>
</tr>
<tr>
<td></td>
<td>Exceeds standard (Excellent) 16-20</td>
<td>Meets standard (Good) 11-15</td>
<td>Progressing to standard (Fair) 6-10</td>
<td>Below standard (Poor) 1-5</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------</td>
<td>-------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supporting Details</td>
<td>Provides ample supporting details</td>
<td>Provides adequate supporting details</td>
<td>Includes some details, but may include extraneous or loosely related material</td>
<td>Includes inconsistent or few details which may interfere with the meaning of the text</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coherence</td>
<td>Organizational pattern is logical; conveys completeness &amp; wholeness</td>
<td>Organizational pattern is logical; conveys completeness &amp; wholeness with few lapses</td>
<td>Achieves little completeness &amp; wholeness though organization attempted</td>
<td>Little evidence of organization or any sense of wholeness &amp; completeness</td>
</tr>
<tr>
<td><strong>Audience</strong></td>
<td>Uses effective language; makes engaging, appropriate word choices for audience &amp; purpose</td>
<td>Uses effective language &amp; appropriate vocabulary, perhaps not appropriate for intended audience &amp; purpose</td>
<td>Limited &amp; predictable vocabulary, perhaps not appropriate for intended audience &amp; purpose</td>
<td>Has a limited or inappropriate vocabulary for the intended audience &amp; purpose</td>
</tr>
<tr>
<td><strong>Style</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventions</td>
<td>Consistently follows the rules of Standard English for conventions</td>
<td>Generally follows the rules for Standard English for conventions</td>
<td>Generally does not follow the rules of Standard English for conventions</td>
<td>Does not follow the rules of Standard English for conventions</td>
</tr>
<tr>
<td>Graphics</td>
<td>Figures and charts are appropriate, clear and communicate well to the audience</td>
<td>Figures and charts are clear and, with a few exceptions, communicate clearly to the audience</td>
<td>Figures and charts are used to communicate but lack consistency in format and style, detracting from audience understanding</td>
<td>Figures and charts are missing or have deficiencies in formatting and style which detract from understanding</td>
</tr>
</tbody>
</table>
COMMUNICATION SKILLS
(60 STUDENTS/2 SECTIONS)

Coherence: 70% Meets, 10% Progressing, 5% Below, 10% Exceeds

Audience: 70% Meets, 15% Progressing, 10% Below, 15% Exceeds

Conventions: 60% Meets, 20% Progressing, 10% Below, 10% Exceeds

Graphics: 50% Meets, 15% Progressing, 15% Below, 20% Exceeds
USING EXCEL TO CAPTURE RUBRIC SCORING

- Developed by IDEAL Senior Scholar, Dr. Donald Sanderson, East Tennessee State University
- Demo Excel spreadsheet
- See Appendix ("Using Excel")
CHECK FOR UNDERSTANDING #5

1. What are the three parts of a rubric?
   a) Scales
   b) Dimensions
   c) Descriptors

2. What is the difference between holistic and analytic rubrics?
Linking results to practice

CURRICULUM MAPPING
CONCEPTUAL MODEL FOR PROGRAM CONTINUOUS QUALITY IMPROVEMENT

EDUCATIONAL PRACTICES AND STRATEGIES

PERFORMANCE INDICATORS

STUDENT OUTCOMES

INSTITUTIONAL MISSION

PROGRAM EDUCATIONAL OBJECTIVES

CONSTITUENTS

REVIEW
“*I think you should be more explicit here in Step Two.*”

- Development of Curriculum Map
- Linking curriculum content/pedagogy to knowledge, practice and demonstration of performance indicators.
PROGRAM ASSESSMENT

Student Outcomes:
- Technical
- Ethics
- Global
- Teams
- Cultural
- Communications Skills
- Contemporary Issues
PURPOSE OF CURRICULUM MAP

- Demonstrates the alignment of the curriculum to student outcomes/performance indicators
- Enhances decisions about where to collect data for summative assessment
- Guides the evaluation process and decision-making about curriculum improvements
**Performance indicator Explicit.** This indicator is explicitly stated as performance for this course.

**Demonstrate Competence.** Students are asked to demonstrate their competence on this performance indicator through homework, projects, tests, etc.

**Formal Feedback.** Students are given formal feedback on their performance on this indicator.

**Not covered.** This performance indicator is not addressed in this course.

*Note: Clicking on the link ‘view rubric’ will show you the scoring rubric for that particular performance indicators related to the outcome.*

### PERFORMANCE INDICATORS

<table>
<thead>
<tr>
<th>RECOGNITION OF ETHICAL AND PROFESSIONAL RESPONSIBILITIES.</th>
<th>INDICATOR</th>
<th>DEMONSTRATE</th>
<th>FORMAL</th>
<th>NOT COVERED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demonstrate knowledge of professional codes of ethics.</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2. Evaluate the ethical dimensions of professional engineering, mathematical, and scientific practices.</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AN ABILITY TO WORK EFFECTIVELY IN TEAM</th>
<th>INDICATOR</th>
<th>DEMONSTRATE</th>
<th>FORMAL</th>
<th>NOT COVERED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Research &amp; Gather Information</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2. Fulfill Team Role's Duties</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>3. Share in work of team</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>4. Listen to Other Teammates</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AN ABILITY TO COMMUNICATE EFFECTIVELY IN ORAL, WRITTEN, GRAPHICAL, AND VISUAL FORMS</th>
<th>INDICATOR</th>
<th>DEMONSTRATE</th>
<th>FORMAL</th>
<th>NOT COVERED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify the readers/audience, assess their previous knowledge and information needs, and organize/design information to meet those needs.</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2. Provide content that is factually correct, supported with evidence, explained with sufficient detail, and properly documented.</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>3. Test readers/audience response to determine how well ideas have been relayed.</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>4. Submit work with a minimum of errors in spelling, punctuation, grammar, and usage.</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>
# Compile the Map:
Curriculum Map for Communication Skills

<table>
<thead>
<tr>
<th></th>
<th><strong>First Year</strong></th>
<th><strong>Sophomore</strong></th>
<th><strong>Junior</strong></th>
<th><strong>Senior</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>Intro to Eng</td>
<td>Statics</td>
<td>Materials</td>
<td>Design I</td>
</tr>
<tr>
<td></td>
<td>Chem I</td>
<td>Physics II</td>
<td>Diff Eq</td>
<td>Biomech</td>
</tr>
<tr>
<td></td>
<td>Composition I</td>
<td>Calc III</td>
<td>Bio Instrum I</td>
<td>Biomaterials II</td>
</tr>
<tr>
<td></td>
<td>Calc I</td>
<td>Comp Prog</td>
<td>Elective</td>
<td>Phys Sys</td>
</tr>
<tr>
<td></td>
<td>Biology I</td>
<td>Elective</td>
<td>Gen Ed</td>
<td>Tissue Eng</td>
</tr>
<tr>
<td></td>
<td>Gen Ed</td>
<td></td>
<td></td>
<td>Seminar</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Intro Design</td>
<td>Dynamics</td>
<td>Thermo</td>
<td>Design II</td>
</tr>
<tr>
<td></td>
<td>Chem II</td>
<td>Org Chem</td>
<td>Bio Instrum II</td>
<td>Fluids</td>
</tr>
<tr>
<td></td>
<td>Physics I</td>
<td>Calc IV</td>
<td>Biomaterials</td>
<td>Eng Elective</td>
</tr>
<tr>
<td></td>
<td>Calc II</td>
<td>Modeling</td>
<td>Biosystems</td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td>Composition II</td>
<td>Eng Elective</td>
<td>Tech Writing</td>
<td>Gen Ed</td>
</tr>
<tr>
<td></td>
<td>Gen Ed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Compile the Map:**
Curriculum map for communication skills

<table>
<thead>
<tr>
<th></th>
<th><strong>First Year</strong></th>
<th><strong>Sophomore</strong></th>
<th><strong>Junior</strong></th>
<th><strong>Senior</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td>Intro to Eng</td>
<td>Statics</td>
<td>Materials</td>
<td>Design I</td>
</tr>
<tr>
<td></td>
<td>Chem I</td>
<td>Physics II</td>
<td>Diff Eq</td>
<td>Biomech</td>
</tr>
<tr>
<td></td>
<td>Composition I</td>
<td>Calc III</td>
<td>Bio Instrum I</td>
<td>Biomateri</td>
</tr>
<tr>
<td></td>
<td>Calc I</td>
<td>Comp Prog</td>
<td>Eng Elective</td>
<td>Phys Sys</td>
</tr>
<tr>
<td></td>
<td>Biology I</td>
<td>Elective</td>
<td>Gen Ed</td>
<td>Tissue Eng</td>
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<tr>
<td></td>
<td>Gen Ed</td>
<td></td>
<td></td>
<td>Seminar</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td>Intro Design</td>
<td>Dynamics</td>
<td>Thermo</td>
<td>Design II</td>
</tr>
<tr>
<td></td>
<td>Chem II</td>
<td>Org Chem</td>
<td>Bio Instrum II</td>
<td>Fluids</td>
</tr>
<tr>
<td></td>
<td>Physics I</td>
<td>Calc IV</td>
<td>Biomaterials I</td>
<td>Eng Elective</td>
</tr>
<tr>
<td></td>
<td>Calc II</td>
<td>Sys Modeling</td>
<td>Biosystems</td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td>Composition II</td>
<td>Eng Elective</td>
<td>Tech Writing</td>
<td>Gen Ed</td>
</tr>
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<td></td>
<td>Gen Ed</td>
<td></td>
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</tr>
<tr>
<td>Writing Competencies</td>
<td>ECON 207</td>
<td>ECON 208</td>
<td>CS 214</td>
<td>ENG 200</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
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<tr>
<td>Identify a subject and formulate a thesis statement.</td>
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<tr>
<td>Organize ideas to support a position.</td>
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</tr>
<tr>
<td>Write in a unified and coherent manner appropriate to the subject matter.</td>
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<tr>
<td>Use appropriate sentence structure and vocabulary.</td>
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<tr>
<td>Document references and citations according to an accepted style manual.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical Thinking Competencies</th>
<th>ECON 207</th>
<th>ECON 208</th>
<th>CS 214</th>
<th>ENG 200</th>
<th>MATH 1165</th>
<th>BUSI 201</th>
<th>BUSI 203</th>
<th>BUSI 211</th>
<th>BUSI 231</th>
<th>BUSI 241</th>
<th>BUSI 251</th>
<th>BUSI 252</th>
<th>BUSI 281</th>
<th>BUSI 371</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify business problems and apply creative solutions.</td>
<td></td>
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<td></td>
<td>I</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>E</td>
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<tr>
<td>Identify and apply leadership techniques.</td>
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<tr>
<td>Translate concepts into current business environments.</td>
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<td></td>
<td>I</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>E</td>
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<tr>
<td>Analyze complex problems by identifying and evaluating the components of the problem.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantitative Reasoning Competencies</th>
<th>ECON 207</th>
<th>ECON 208</th>
<th>CS 214</th>
<th>ENG 200</th>
<th>MATH 1165</th>
<th>BUSI 201</th>
<th>BUSI 203</th>
<th>BUSI 211</th>
<th>BUSI 231</th>
<th>BUSI 241</th>
<th>BUSI 251</th>
<th>BUSI 252</th>
<th>BUSI 281</th>
<th>BUSI 371</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply quantitative methods to solving real-world problems.</td>
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<tr>
<td>Perform necessary arithmetic computations to solve quantitative problems.</td>
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<tr>
<td>Evaluate information presented in tabular, numerical, and graphical form.</td>
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<tr>
<td>Recognize the reasonableness of numbers in context.</td>
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</tr>
</tbody>
</table>

I = Introduce; R = Reinforce; E = Emphasize (Knowledge/Comprehension)
R = Reinforce (Application/Analysis)
E = Emphasize (Evaluation/Synthesis)
1. Name two of three purposes for curriculum map?
   a) Depicts alignment of the curriculum to performance indicators
   b) Informs decisions about where to collect data
   c) Guides decisions about where to implement improvements

2. The curriculum map should be completed by whom?
Application: ASSESSMENT METHODS
METHOD ASSIGNMENT - COUNT AROUND THE TABLE.

#1= Methods 1 & 10
#2= Methods 2 & 8
#3= Methods 3 & 9
#4= Methods 4 & 7
#5= Methods 5 & 6
#6= Methods 11 & 5
APPLICATION: BECOMING AN ASSESSMENT METHOD RESOURCE

1. This evening study the assessment methods you have been assigned. Make notes on what might still need clarification. Also think about how you might apply these two methods in your own program.

2. Be prepared for tomorrow’s discussion of the highlights (advantages and disadvantages) of the methods with those who have been assigned the same methods from the other tables.
HOW DO WE KNOW WHAT STUDENTS KNOW?
“...assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the outcome being measured.”
# Types of Assessment

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Formative</th>
<th>Summative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formative vs. Summative</strong></td>
<td>Formative – those undertaken as students progress through the course/curriculum; the purpose is to identify areas of learning that need to be improved before the end of the course/program.</td>
<td>Summative – obtained at the end of a course or program; the purpose of which is to document student learning; designed to capture students’ achievement at the end of their program of study.</td>
</tr>
<tr>
<td><strong>Direct vs. Indirect</strong></td>
<td>Direct – Provides for the direct examination or observation of student knowledge or skills against measurable student outcomes.</td>
<td>Indirect – Ascertains the opinion or self-report of the extent or value of learning.</td>
</tr>
<tr>
<td><strong>Objective vs. Subjective</strong></td>
<td>Objective – one that needs no professional judgment to score correctly; examples: multiple-choice, true-false, exams where there is a finite number of “right” answers.</td>
<td>Subjective – yield many possible answers of varying quality and require professional judgment to score.</td>
</tr>
<tr>
<td><strong>Embedded vs. Add-on</strong></td>
<td>Embedded – program assessments that are taken as a part of the course work.</td>
<td>Add-on – assessments that are in addition to course requirements.</td>
</tr>
<tr>
<td><strong>Quantitative vs. Qualitative</strong></td>
<td>Quantitative – predetermined response options that can be summarized into meaningful numbers and analyzed statistically.</td>
<td>Qualitative – use flexible, naturalistic methods and are usually analyzed by looking for recurring patterns and themes.</td>
</tr>
</tbody>
</table>
ASSESSMENT METHODS
CONTEXT FOR DATA COLLECTION

- Written surveys and questionnaires
- Exit and other interviews
- Standardized exams
- Locally developed exams
- Archival records
- Focus groups

- Portfolios
- Simulations
- Performance Appraisal
- External examiner
- Oral exams
DIRECT MEASURES
Provide for the direct examination or observation of student knowledge or skills against measurable student outcomes

INDIRECT MEASURES
Indirect measures of student learning ascertain the opinion or self-report of the extent or value of learning experiences
Whether or not a particular assessment method is direct or indirect depends on the nature of what is being measured and how the method is being used.
Application

ASSESSMENT METHODS
METHOD ASSIGNMENT
YOU WERE ASSIGNED TWO ASSESSMENT METHODS:

#1= Methods 1 & 10
#2= Methods 2 & 8
#3= Methods 3 & 9
#4= Methods 4 & 7
#5= Methods 5 & 6
#6= Methods 11 & 5
Step 3. Review of methods (25 minutes)

• Meet with the representatives from the other tables who have been assigned the same methods as yours.

• Spend 20 minutes total discussing together the highlights of advantages and disadvantages for each assigned method clarifying any questions that you might have.

• Discuss plans to “teach back” the methods to those at your team table. You have three minutes per method for the teach back (three minutes per method total).

• Remember, in the teach back process it does not make any difference if you like the method or not. It is only your responsibility to learn about the method so that you can teach others about it. You will get an opportunity to lobby for/against it during Step 5 below.
APPLICATION: ASSESSMENT METHOD RESOURCE

Step 4: Teach back at your team table (33 minutes total)

Appoint someone to be a timekeeper. Start with method one and, whoever studied method #1 will teach the method to the others at your table. Continue until all methods are covered. Spend no more than 3 minutes per method.

Step 5: Assignment (10 minutes)

After sharing the assessment methods, choose THREE methods that can be used to assess the student outcome for which you developed/critiqued performance indicators. At least one method chosen must be a direct method. Record your findings so that you can share your recommendations. Include an example of how the method could be used to assess the outcome.
REPORT OUT
CHECK FOR UNDERSTANDING #7

1. Name two direct assessment methods.

2. Name two indirect assessment methods.
SURVEY DEVELOPMENT
Enemies of Effective Surveys

Best Practices in Survey Design

Honey,
I loved your web thing so much, I filled out your customer survey 60 times! lol!
ENEMIES OF EFFECTIVE SURVEYS

Fatigue

Distrust

Bias

Lack of Audience Knowledge

Other
SURVEY CREATION PROCESS

- State Objectives
- Question (Item) Creation
- Pilot The Survey
- Data Collection
- Data Analysis
- Report Findings
BEST PRACTICE #1
Start with your OBJECTIVES
BEST PRACTICE #1
START WITH OBJECTIVES, THEN DEVELOP QUESTIONS

Ask Yourself

• What do I want to know?
  • Make a list of specific informational needs
• Will this question give me the information I need?
• Who will provide the data (target audience)?
• How will I use the data?
• Do I need approval from the Institutional Review Board?
QUESTIONS TO ASK

• What do you need to ask to answer the broad questions?
• How will the survey be administered?
• When will the survey be administered?
• What is your budget and timeline?
Example

WHAT DO WE WANT TO KNOW?
### Alumni Survey
#### Example of Table to Guide Item Development

**Program Objectives:**
1. Graduates will be effective in engineering design and practical application of engineering theory
2. Graduates will exhibit teamwork and effective communication skills.
3. Graduates will be characterized by effective leadership skills and high standards of ethics
4. Graduates will expand their knowledge and capabilities.

<table>
<thead>
<tr>
<th>What do we want to know?</th>
<th>Survey Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are effective leadership skills relevant to the work of our graduates?</td>
<td>Since graduation, have you been the leader of a project team or similar task group?</td>
</tr>
<tr>
<td></td>
<td>If no, have you participated as a member of a project team or similar task group?</td>
</tr>
<tr>
<td></td>
<td>Do you anticipate being asked to lead a project team or similar task group in the near future?</td>
</tr>
<tr>
<td></td>
<td>Do you think teaching leadership skills should be a priority for ABC program?</td>
</tr>
<tr>
<td>Comment box:</td>
<td></td>
</tr>
<tr>
<td>Is the ability to resolve ethical issues a skill that is relevant to the work of our graduates?</td>
<td>Have you been confronted with an ethical issue since your employment?</td>
</tr>
<tr>
<td></td>
<td>Do you believe it is important for ABC program to provide students with the ability to resolve ethical issues?</td>
</tr>
<tr>
<td></td>
<td>Comment box:</td>
</tr>
<tr>
<td>Is the ability to expand the knowledge and capabilities of our graduates a skill that is still relevant to their early career?</td>
<td>Have you been required to seek out new information on your own since your employment?</td>
</tr>
<tr>
<td></td>
<td>Do you believe it is important for ABC program to provide its students with experiences and knowledge that enable them to continue to learn after graduation?</td>
</tr>
<tr>
<td></td>
<td>Comment box:</td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
</tr>
</tbody>
</table>
BEST PRACTICE #2
Use concise, common language for questions and options

State Objectives

Question (Item) Creation
BEST PRACTICE #2
Be Clear, Targeted, and Concise

QUESTION
(ITEM)
Creation

LEGIBLE
Clear

RELEVANT
Targeted

PAINLESS
Concise
BEST PRACTICE #2
Be Clear, Targeted, and Concise

Question (Item) Creation

Focus
Clear

Clarity
Targeted

Brevity
Concise
DEVELOPING SURVEY ITEMS

• Avoid double negatives:
  • “If you have not already been turned down for positions you’ve applied for, please skip to item 18.”
  • Try: “If you already have a job, skip to item 18.”
• Avoid jargon and acronyms that might not be understood by everyone.
SURVEY ITEMS

• Avoid asking leading questions:
  • Why do you think the laboratories need to be improved?
• Questions must ask for information that the respondent can answer.
  • First-year students cannot comment on graduation check-out procedures
SURVEY ITEM CRITIQUE
ALUMNI SURVEY

Rank how well your education prepared you with speaking and writing skills for your current position.

_____ Excellent
_____ Good
_____ Fair
_____ Poor
_____ Very Poor
_____ Not Applicable

Item asks respondents to “rank” but then given an opinion scale; item has two different skills in one item.
COURSE SURVEY

For each question, indicate your opinion by choosing one of the following:

(5) Strongly Agree
(2) Agree
(3) Undecided
(4) Disagree
(5) Strongly Disagree

After completing this course, students should be able to:
1. Define and describe voltage, current and resistance.
2. Simplify and analyze resistor networks in series and parallel circuits.
3. (etc.)

Unclear the purpose of the questions. Items are misnumbered. It is only asking what students “should” be able to do, not what they “can” do.
FROM ALUMNI SURVEY:

Each item below describes an objective of the XXXXX program at STU. These are phrases that describe the expectations for graduates in the first several years of their careers. Place an X in the box that corresponds to your response. On the left, indicate the degree to which you agree that you have personally achieved this objective. On the right, state your belief about the relative importance of this objective in your professional career.

<table>
<thead>
<tr>
<th>STRONGLY DISAGREE</th>
<th>DISAGREE</th>
<th>NEUTRAL</th>
<th>AGREE</th>
<th>STRONGLY AGREE</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Demonstrate proficiency in all forms of communication, perform well in a multidisciplinary team environment and demonstrate the highest standards of personal and professional integrity and ethical responsibility.

*Instructions complex; several objectives in one statement; right hand scale does not match question*
COURSE EVALUATION

Please answer the following on a scale of 1=Least/Worst to 5=Most/Best

1. Students level of preparedness
2. Adequacy of classroom
3. etc.

Please indicate whether or not the following abilities formed an important element of your course from 1=Not at all and 5=Very important

1. Apply mathematics, science and engineering principles
2. Design and conduct experiments and interpret data
3. etc.

Scale does not seem to be appropriate to the items; misspelled word; what does “formed an importatnt [sic] element mean?” Was it important to the student? Important to the course? Scale needs to be specific; multiple abilities in one question
ALUMNI SURVEY

Which of the following should we do to improve education in the area of math and basic science? Also, please select the item you feel is most important.

<table>
<thead>
<tr>
<th>Most Important</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>o</td>
<td>Recommend more math courses</td>
</tr>
<tr>
<td>o</td>
<td>Require more basic science courses</td>
</tr>
<tr>
<td>o</td>
<td>More emphasis on math/basic science in EET courses</td>
</tr>
</tbody>
</table>

Can alumni answer these questions? What is the context for their responses? (e.g., what is the problem being addressed?); One item says “recommend” other says “require” another says “more emphasis”; not clear what the two columns to the right without labels represent.
If you have employed STU graduates what are their areas of specialization, how would you rate their performance, and how many do you employ?

Lack of understanding of audience; text box (e.g., number of items, nature of question); three questions in one with one text box; difficulty in interpreting and presenting data
DESIGNING THE SURVEY

- If paper survey, stamped, self-addressed return envelope
- Consider use of social media
- Timing of delivery is important
- Professional appearance
- Graphics and layout
- Order questions from general to specific
- Interesting, important questions
- No grammar or spelling errors
- Pilot test!!!! (sample protocol)

Current Salary Information:
- _____ Less than $40,000
- _____ $40,000 to $50,000
- _____ $50,000- $60,000
- _____ $50,000 to $70,000
- _____ More than $70,000
BEST PRACTICE #3
Optimize the user’s experience
**BEST PRACTICE #3**
Survey Structure: Optimize the user’s experience

**TYPES OF QUESTIONS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-Ended</td>
<td>• Allows respondents to answer in their own words</td>
</tr>
<tr>
<td>Closed-Ended</td>
<td>• Pre-designed questions with a set of potential choices</td>
</tr>
<tr>
<td>Ranked</td>
<td>• All choices listed should be ranked according to a level of specification</td>
</tr>
<tr>
<td>Matrix and Rating</td>
<td>• Surveys frequency</td>
</tr>
<tr>
<td>Likert Scales</td>
<td>• A type of rating scale</td>
</tr>
<tr>
<td></td>
<td>• Levels of agreement</td>
</tr>
</tbody>
</table>
BEST PRACTICE #3
Survey Structure: Optimize the user’s experience
BEST PRACTICE #4
Pilot Test, Pilot Test, Pilot Test

- State Objectives
- Question (Item) Creation
- Pilot The Survey
BEST PRACTICE #4
Pilot the Survey: Test, test, test

Usability Testing
- Time
- Readability
- Spelling

Functional Testing
- Logic
- Actions
- Behavior

Review test data against purpose
BEST PRACTICE #5
Introduce your survey
BEST PRACTICE #5
Maximize Response Rates: Introduce your survey

Response Rates and Incentives

How to maximize the likelihood of response?
• Personalize cover letter or email
• Articulate the purpose and “return on investment”
• Request participation in advance
• Provide clear instructions
• Send friendly reminders
• Non-threatening items = higher response rate

How appropriate is it to provide an incentive to respond to a survey?
• Ensure your incentive is not interpreted as coercive
Dear :

Thank you for agreeing to help us prepare for our accreditation visit by ABET in the Fall of 2015, an intensive on-campus review and assessment which occurs every six years. It is critically important that we receive a positive review of our program. A positive review will ensure the success of our engineering program, help attract the best and brightest students to our program, and provide you, the stakeholders, with the best possible engineering graduates.

I am asking you to review two (2) areas of our programs: Department Objectives and Department Curriculum.

……………………………………

Sincerely,

John J Smith,
Professor and Chair
BEST PRACTICE #6
Design with the end in mind

State Objectives
Question (Item) Creation
Pilot The Survey
Data Collection
Data Analysis
IMPLEMENTING THE SURVEY

• Consider sampling if the survey is long (over 20 items?) and the numbers of respondents are large enough
• Consider two administrations if you cannot sample
BEST PRACTICE #7
Know your audience

State Objectives
Question (Item) Creation
Pilot The Survey
Data Collection
Data Analysis
Report Findings
BEST PRACTICE #7
Reporting Your Findings: Know your audience

• Reports should be easy to read

• Accompany findings with an Executive Summary

• Avoid statistical jargon

• Report findings to “change makers”
CHECK FOR UNDERSTANDING #8

1. There are several things to remember about developing survey items. Name two.
   • Only ask one question at a time!
   • Keep the items short and simple
   • Avoid double negatives:
   • Avoid jargon and acronyms
   • Avoid asking leading questions:
   • Questions must ask for information that the respondent can answer.
2. When designing surveys, name two things that are important.
   - Demographic items toward the end
   - Complex and open-ended items towards the end
   - Use skip logic when available
   - Start with easy items to get buy-in
   - Non-threatening items will get higher response rate
   - Get “sponsorship” (credible authority)
   - Personalize cover letter or email
ASSESSMENT METHODS
WRAP UP
VALIDITY

1. **Relevance** - the assessment option measures the student outcome as *directly* as possible.

2. **Accuracy** - the option measures the student outcome with confidence that the findings represent the *true value* of student learning.

3. **Utility** - the option provides formative and summative results with *clear implications* for program evaluation and improvement.
“BOTTOM LINES”

✓ All assessment options have advantages and disadvantages
✓ “Ideal” method means those that are best fit between program needs, satisfactory validity, and affordability (time, effort, and money)
✓ Crucial to use multi-method/multi-source approach to maximize validity and reduce bias of any one approach
TRIANGULATION
Mixed Methods

SURVEYS
PORTFOLIOS
FOCUS GROUPS
TRUTH
TRIANGULATION

Adapted from Joseph Hoey
Vice President, Accreditation Relations and Policy at Bridgepoint Education
ASSESSMENT METHOD TRUISMS

✓ There will always be more than one way to measure any student outcome
✓ No single method is good for measuring a wide variety of different student abilities
✓ There is generally an inverse relationship between the quality of measurement methods and their expediency
✓ It is important to pilot test to see if a method is appropriate for your program
USE OF TECHNOLOGY

• Harness technology to enhance the efficiency and effectiveness of the assessment process.
  • What do you need to think about when making decisions about the use of technology?
    • How would we use technology that increase the effectiveness of what we are now doing?
  • What are the tradeoffs?
    • Cost/Benefit, Training, Maintenance, Quality of data/information
ASSESSMENT PROCESSES: CHECK FOR UNDERSTANDING CLOSED BOOK
DEVELOPING EFFICIENT PROCESSES
HOW MANY DATA ARE ENOUGH?
DATA COLLECTION PROCESS

• Why?
  • Understand the focus of program assessment
### Taxonomy of Approaches to Assessment

#### Purpose of Assessment (Why?)
- **Learning/Teaching (Formative)**
- **Accountability (Summative)**

#### Level of Assessment (Who?)
- **Individual**
  - Competency-Based Instruction
  - Assessment-Based Curriculum
  - Individual Perf. Tests
  - Placement
  - Advanced Placement Tests
  - Vocational Preference Tests
  - Other Diagnostic Tests
- **Group**
  - Program Enhancement
    - Individual assessment results may be aggregated to serve program evaluation needs
  - “Gatekeeping”
    - Admissions Tests
    - Rising Junior Exams
    - Comprehensive Exams
    - Certification Exams

#### Object of Assessment (What?)
- **Behavior**
- **Knowledge**
- **Skills**
- **Values**

#### Competencies
- Program Enhancement
  - Individual assessment results may be aggregated to serve program evaluation needs
- Campus and Program Evaluation
  - Program Reviews
  - Retention Studies
  - Alumni Studies
  - “Value-added” Studies

- **“Gatekeeping”**
  - Admissions Tests
  - Rising Junior Exams
  - Comprehensive Exams
  - Certification Exams

**Terenzini, JHE Nov/Dec 1989**
DATA COLLECTION PROCESS

• Why?
  • Know your question

• What?
  • Focus on few indicators for each outcome

• Who? Students (cohorts); faculty (some)
For program assessment, sampling is acceptable and even desirable for programs of sufficient size.

- Sample is representative of all students

http://www.surveysystem.com/sscalc.htm
DATA COLLECTION PROCESS

• Why?
  • Know your question

• What?
  • Focus on few indicators for each outcome

• Who? Students (cohorts); faculty (some)

• When?
Define Outcomes and Map Curriculum
Collect Data
Evaluate Results and Design Improvements
Implement Improvements and Collect Data

YEAR 1  YEAR 2  YEAR 3  YEAR 4
<table>
<thead>
<tr>
<th>STUDENT OUTCOMES</th>
<th>15-16</th>
<th>16-17</th>
<th>17-18</th>
<th>18-19</th>
<th>19-20</th>
<th>20-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>A recognition of ethical and professional responsibilities</td>
<td>A</td>
<td>E</td>
<td>C</td>
<td>A</td>
<td>E</td>
<td>C</td>
</tr>
</tbody>
</table>

A= Assess; E= Evaluate; C= Change (if necessary)
ESTABLISH AN ANNUAL CYCLE

**SUMMER**
- Assessment committee prepares report for department chair and program faculty

**SPRING**
- Reports of actions taken are returned to assessment committee

**FALL**
- Program faculty evaluate evidence and make recommendations

**WINTER**
- Program acts on recommendations of the faculty
CHECK FOR UNDERSTANDING #9

1. When is sampling for assessment acceptable and even advisable?

2. Every student outcome should be assessed every year for program assessment—True or False
ASSESSMENT METHOD CRITIQUE
Outcomes:
(a) apply knowledge of mathematics, science, and engineering
(d) function on multidisciplinary teams
(g) ability to communicate effectively
(k) use the techniques, skills, and modern engineering tools necessary for engineering practice
Outcomes:
(a) apply knowledge of mathematics, science, and engineering
(c) an ability to design a system, component, or process
(d) function on multidisciplinary teams
(g) ability to communicate effectively
(i) recognition of the need for, and an ability to engage in life-long learning
(j) knowledge of contemporary issues
For each test/exam item and homework problem, faculty map to outcomes and enter data for each student on each item/assignment. Acceptable performance level = 75%

<table>
<thead>
<tr>
<th>OUTCOME COURSE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
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<td>92</td>
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<tr>
<td>Average</td>
<td>79.3</td>
<td>77.4</td>
<td>79.3</td>
<td></td>
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<td></td>
<td></td>
<td>74.8</td>
<td>80.9</td>
<td>81.3</td>
</tr>
</tbody>
</table>

Three different levels of achievement:

- Exceeds Expectations (EE): more than 80% of the students have achieved an **average score** of 75% or more;
- Meets Expectations (ME): between 70% and 80% of the students have achieved an **average score** of 75% or more;
- Does Not Meet Expectations (DNME): less than 70% of the students have achieved an **average score** of 75% or more.
FROM INFORMATION TO IMPROVEMENTS
EVALUATION
EVALUATION

• Assessment is not a controlled experiment
• This is a *data-informed*, not data-driven process
• Take advantage of faculty wisdom and insight
  • NOT just anecdotal, but includes the human element as well.
  • Data tell you WHAT
  • Wisdom tells you WHY
    • Why is this student group different?
• Improvements should be linked to principles of student learning
  • Focus mainly on student learning
Improvement Decisions Example

Direct assessment (e.g. rubrics applied to design problem)

Data

Focus groups or interviews

Hold until next cycle; results not conclusive

Analysis: Weigh actions, consider resources

Survey results

Too expensive (time, $)

Information

Feedback

Improvement Action
EVALUATION

- Evaluation = data + wisdom
  - Data are necessary but not sufficient
- Evaluation application exercise (20 minutes)
  - Thinking about all the things we have discussed to this point, read your assigned scenario and discuss the questions at the end. Be sure to have someone to take notes on your suggestions/observations.
- Report out
1. Each table has a scenario that describes the results of an assessment process.
2. Review the scenario and answer the evaluation questions posed. Be prepared to report out.
REPORTING YOUR RESULTS
CRITERION 4
CONTINUOUS IMPROVEMENT

• The program must use a documented process incorporating relevant data to regularly assess its student outcomes, and to evaluate the extent to which they are being met.

• The results of these evaluations of student outcomes must be used to effect continuous improvement of the program through a documented plan. Other information may also be used to assist in the continuous improvement of the program.
SELF-STUDY GUIDELINES
CRITERION 4. CONTINUOUS IMPROVEMENT

Student Outcomes: It is recommended that this section include (a table may be used to present this information):

- A listing and description of the assessment processes used to gather the data upon which the evaluation of each student outcome is based…
- The frequency with which these assessment processes are carried out
- The expected level of attainment for each of the student outcomes
- Summaries of the results of the evaluation process and an analysis illustrating the extent to which each of the student outcomes is being attained
- How the results are documented and maintained
BACK TO THE BASICS
REPORTING ON OBJECTIVES, OUTCOMES, CONTINUOUS IMPROVEMENT

• Know your audience
• Keep it simple
• If you haven’t done it, you’re not going to fool them
### Student Outcome: Students will demonstrate the ability to work effectively in teams.

<table>
<thead>
<tr>
<th>PERFORMANCE INDICATORS</th>
<th>EDUCATIONAL STRATEGIES</th>
<th>METHOD(S) OF ASSESSMENT</th>
<th>WHERE SUMMATIVE DATA ARE COLLECTED</th>
<th>WHERE FORMATIVE DATA ARE COLLECTED</th>
<th>CYCLE</th>
<th>TIME OF DATA COLLECTION</th>
<th>THRESHOLD FOR PERFORMANCE</th>
</tr>
</thead>
</table>

**Results Summary (direct measures) 2009:** A sample of 56 students (52% of 2009 cohort) were assessed for the summative assessment. This represents 2 of 4 sections of 4092 (which is the second semester of a two-semester team experience.) The percent of the sample that demonstrated each indicator at satisfactory or exemplary were as follows: Indicator 1 - 72%; Indicator 2 - 65%; Indicator 3 - 62%; Indicator 4 - 89%

**Actions 2010:** The faculty who integrated teaming into their courses met in the fall of 2007 and 2008 to review the formative data and make recommendations for changes during those academic years. Based on the analysis of the summative results, the department asked faculty to provide the teaming scoring rubrics to students with the course assignments where the students were provided opportunities to demonstrate their teaming skills as defined by the outcomes. A sub-committee of the department Curriculum Committee met to review the outcomes. It was decided not to make any changes at this time. Faculty decided that they would review their assignments to be sure that students were given adequate opportunities to demonstrate the performance identified for teaming. Faculty also agreed to make students performance on the performance indicators a part of their grade for the activity. The Teaching/Learning Center will also provide a seminar for faculty on how to integrate effective teaming into the classroom.

**Second-Cycle Results Summary 2012:** A sample of 59 students (51% of cohort) were assessed for the summative assessment. This represents 2 of 4 sections of 4092 (which is the second semester of a two-semester team experience.) Based on changes made, the following improvements were seen: Indicator 1 - +12% (84%); Indicator 2 - +7% (72%); Indicator 3 - +13% (75%); Indicator 4 - +2% (91%).

**Actions 2013:** The faculty who integrated teaming into their courses met in the fall of 2010 and 2011 to review the formative data and make recommendations for changes during those academic years. Although progress was made on all indicators, the Curriculum Committee recommended that the department take another look at all the indicators related to teaming. The Teaching/Learning Center was asked to provide the department faculty some feedback on the indicators and also provide other examples of teaming indicators. This will be one of the issues that will be discussed at the Department retreat for possible revisions for the 2014 academic year.
Student Outcome: Students can work effectively in teams

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PEER EVALUATIONS

CAPSTONE, 2012
347 Responses

- Demonstrates good listening skills: 10% Unsatisfactory, 67% Developing, 9% Satisfactory, 13% Exemplary
- Shares in the work of the team: 10% Unsatisfactory, 67% Developing, 8% Satisfactory, 15% Exemplary
- Understanding team roles when assigned: 9% Unsatisfactory, 83% Developing, 6% Satisfactory, 2% Exemplary
- Produces research info: 11% Unsatisfactory, 71% Developing, 15% Satisfactory, 3% Exemplary

ABET
COMPARE FACULTY & PEER EVALUATIONS

Satisfactory/Exemplary
Summative, 2012

Faculty n=52; Peer N=347

- Produces research info: 84% (Faculty) vs. 82% (Peer)
- Understanding team roles when assigned: 72% (Faculty) vs. 91% (Peer)
- Shares in the work of the team: 75% (Faculty) vs. 77% (Peer)
- Demonstrates good listening skills: 91% (Faculty) vs. 77% (Peer)
My experience in the Computer Science program gives me confidence that I will be able to work with others effectively on project teams.

N=108

- **Strongly Agree/Agree**: 89%
- **Don't Know**: 5%
- **Disagree/Strongly Disagree**: 5%
## Formative Assessment

**COURSE 2001**  
N=378

<table>
<thead>
<tr>
<th>Item</th>
<th>U</th>
<th>D</th>
<th>S</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produces research info</td>
<td>10</td>
<td>11</td>
<td>74</td>
<td>5</td>
</tr>
<tr>
<td>Understanding team roles when assigned</td>
<td>13</td>
<td>10</td>
<td>72</td>
<td>5</td>
</tr>
<tr>
<td>Shares in the work of the team</td>
<td>25</td>
<td>8</td>
<td>57</td>
<td>10</td>
</tr>
<tr>
<td>Demonstrates good listening skills</td>
<td>18</td>
<td>5</td>
<td>60</td>
<td>17</td>
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</tbody>
</table>

**COURSE 3001**  
N=389

<table>
<thead>
<tr>
<th>Item</th>
<th>U</th>
<th>D</th>
<th>S</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produces research info</td>
<td>4</td>
<td>11</td>
<td>80</td>
<td>5</td>
</tr>
<tr>
<td>Understanding team roles when assigned</td>
<td>5</td>
<td>16</td>
<td>74</td>
<td>5</td>
</tr>
<tr>
<td>Shares in the work of the team</td>
<td>8</td>
<td>18</td>
<td>64</td>
<td>10</td>
</tr>
<tr>
<td>Demonstrates good listening skills</td>
<td>9</td>
<td>7</td>
<td>67</td>
<td>17</td>
</tr>
</tbody>
</table>

**Legend:**  
- U = Unsatisfactory  
- D = Developing  
- S = Satisfactory  
- E = Exemplary
FORMATIVE DATA

PEER ASSESSMENTS
Satisfactory/Exemplary Rating

- Produces research info: 79% (2010-Course 2001; n=378) vs. 85% (2011-Course 3001; n=389)
- Understanding team roles when assigned: 77% (2010-Course 2001; n=378) vs. 79% (2011-Course 3001; n=389)
- Shares in the work of the team: 67% (2010-Course 2001; n=378) vs. 74% (2011-Course 3001; n=389)
- Demonstrates good listening skills: 77% (2010-Course 2001; n=378) vs. 84% (2011-Course 3001; n=389)
SUMMATIVE DATA

CAPSTONE PEER ASSESSMENTS
Satisfactory/Exemplary Rating

- Produces research info: 79% (Course 2001; n=378), 85% (Course 3001; n=389), 82% (Peer Evaluation, n=347)
- Understanding team roles when assigned: 77% (Course 2001; n=378), 79% (Course 3001; n=389), 91% (Peer Evaluation, n=347)
- Shares in the work of the team: 67% (Course 2001; n=378), 74% (Course 3001; n=389), 77% (Peer Evaluation, n=347)
- Demonstrates good listening skills: 77% (Course 2001; n=378), 84% (Course 3001; n=389), 77% (Peer Evaluation, n=347)
CUMULATIVE DATA

ASSESSMENTS
Satisfactory/Exemplary Rating

- Produces research info: 79%; 85%; 82%; 84%
- Understanding team roles when assigned: 77%; 79%; 91%
- Shares in the work of the team: 67%; 74%; 77%; 75%
- Demonstrates good listening skills: 77%; 84%; 77%; 91%

Legend:
- Course 2001; n=378
- Course 3001; n=389
- Peer Evaluation, n=347
- Faculty Evaluations
TREND DATA

EFFECTIVE TEAMING SKILLS
Satisfactory/Exemplary Rating

Threshold = 80%

<table>
<thead>
<tr>
<th>Skill</th>
<th>2009</th>
<th>2012</th>
<th>2015</th>
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</thead>
<tbody>
<tr>
<td>Produces research information</td>
<td>75%</td>
<td>72%</td>
<td>84%</td>
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<tr>
<td>Understanding of team roles when assigned</td>
<td>60%</td>
<td>65%</td>
<td>72%</td>
</tr>
<tr>
<td>Shares in the work of the team</td>
<td>65%</td>
<td>62%</td>
<td>75%</td>
</tr>
<tr>
<td>Demonstrates good listening skills</td>
<td>82%</td>
<td>89%</td>
<td>91%</td>
</tr>
</tbody>
</table>
TREND DATA

These data can be used for reporting purposes in three areas:

- **Program review**: Did the changes/recommendations make any difference? The answer to this question feeds back to improve the program.

- **Institution**: Is the program being effective in documenting student learning and improving learning over time?

- **Accrediting agency**: What is the evidence of student learning? Is there a process in place that enables the program to determine the level of student learning and the ability to continuously improve their educational processes?
When setting a threshold for a performance indicator, here is what you should consider:

- **Cognitive level:** (e.g., is expectation at the knowledge, comprehension, application, analysis, synthesis, evaluation level): One would anticipate that the higher the cognitive level, the higher degree of difficulty.

- **Complexity of application:** The more complex the application of the skill, the more difficulty (e.g., designing a mousetrap car in a 100-level course vs. a senior design project).

- **Curriculum support:** The more courses that support student performance for each indicator, the more likely it is that students will achieve the anticipated performance.
  - Student learning is cumulative over time. As students progress through the curriculum the application of skills are likely to be with more complex problems.
  - This means that there might be different “thresholds” for each of the performance indicators that make up any one outcome.
### Student Outcome: An understanding of professional and ethical responsibility

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Educational Strategies</th>
<th>Method(s) of Assessment</th>
<th>Where summative data are collected</th>
<th>Where formative data are collected</th>
<th>Length of assessment cycle (yrs)</th>
<th>Yr/Sem of summative data collection</th>
<th>Threshold for Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knows code of ethics for the discipline</td>
<td>2001, 2060, 3001</td>
<td>Locally developed exam&lt;br&gt;Senior Surveys&lt;br&gt;On-line survey</td>
<td>3001</td>
<td>2001 (yr 1 of cycle), 2060 (yr 2 of cycle)</td>
<td>3 years</td>
<td>2009, 2012</td>
<td>80%</td>
</tr>
<tr>
<td>2. Ability to evaluate the ethical dimensions of a problem in the discipline</td>
<td>3001, 4092</td>
<td>Case study&lt;br&gt;review/rubric&lt;br&gt;Senior Surveys&lt;br&gt;On-line survey</td>
<td>4092</td>
<td>3001 (yr. w)</td>
<td>3 years</td>
<td>2009, 2012</td>
<td>70%</td>
</tr>
</tbody>
</table>

**Assessment Results Summary (direct measures) 2009:** Summative data were collected in 3001. For the summative assessment (end of program), the decision was made to focus on the direct assessment of faculty developed examination as the primary assessment data for both indicators. The assessment of indicator #1 was done in course 3001 after a review of material covered earlier in the program. Because the indicator is at the “knowledge” level, a multiple choice/true-false exam was given to see how well the student had learned the material. For indicator #2, a case study was chosen from http://ethics.tamu.edu/ethicscasestudies.htm and was used in the 4092 class. The scoring rubrics were completed by the faculty. The percent of the students that demonstrated each criterion were as follows: Indicator #1 - 66%; Indicator #2 - 58%.

**Evaluation and Actions 2010:** The faculty who integrated ethics into their courses met in the fall of 2007 and 2008 to review the formative data and make recommendations for changes during those academic years. The assessment results were evaluated by the faculty at a retreat held in August of 2010. Indicator #1: Based on the analysis of the results, the faculty who were introducing and/or reinforcing the code of ethics in their courses were asked to reinforce the importance of knowing the code of ethics for the discipline. They were also encouraged to review the scores to see if there were common items missed and to reiterate the areas where students’ performance was weak. Indicator #2: Faculty were asked to provide the scoring rubrics to students with the case study so they could see how they would be evaluated. A sub-committee of the department Curriculum Committee was assigned to meet and review the performance indicators to be sure that they were appropriate. The Advisory Committee was also asked to provide feedback. It was recommended not to make any changes at this time. Faculty integrating ethics agreed to review their assignments to be sure that students were given adequate opportunities to learn the codes in the context of the discipline and to make students performance on the exam was an adequate portion of the overall grade for the unit.

**Second-Cycle Results Summary (direct measures) 2012:** The second cycle summative data were again taken in the 3001 for indicator #1 and 4092 for indicator #2. Based on actions taken as a result of the 2006 evaluation process, the following improvements were seen in 2008: Indicator #1 – +10% (74%); Indicator #2 - +12% (70%).

**Evaluation and Actions 2013:** The faculty who integrated ethics into their courses met in the fall of 2010 and 2011 to review the formative data and make recommendations for changes during those academic years. During the August 2013 department retreat, the faculty agreed that adequate progress had been made on both of the indicators and no further action would be taken at this time. However, at the end of the 2013 assessment cycle for ethics if the trend continues upward the committee will review whether or not the thresholds should be raised in an effort to continually improve student performance.
<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Educational Strategies</th>
<th>Method(s) of Assessment</th>
<th>Where summative data are collected</th>
<th>Where formative data are collected</th>
<th>Length of assessment cycle (yrs)</th>
<th>Yr/Sem of data summative collection</th>
<th>Threshold for Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Observes good lab practice and operates instrumentation with ease</td>
<td>1010, 1015, 1011, 2020, 2040, 2060, 3010, 3013, 3050, 4090, 4092</td>
<td>Observations (rubrics)</td>
<td>3050</td>
<td>1015 (Yr1 cycle); 3013 (Yr 2 cycle)</td>
<td>3 years</td>
<td>2009, 2012</td>
<td>90%</td>
</tr>
<tr>
<td>2. Determines data that are appropriate to collect and selects appropriate equipment, protocols, etc. for measuring the appropriate variables to get required data</td>
<td>1010, 1015, 1011, 2020, 2040, 2060, 3010, 3013, 3050, 4090, 4092</td>
<td>Lab report (rubrics)</td>
<td>3050</td>
<td>1015 (Yr1 cycle); 3013 (Yr 2 cycle)</td>
<td>3 years</td>
<td>2009, 2012</td>
<td>85%</td>
</tr>
<tr>
<td>3. Uses appropriate tools to analyze data and verifies and validates experimental results including the use of statistics to account for possible experimental error</td>
<td>1010, 1015, 1011, 2020, 2040, 2060, 3010, 3013, 3050, 4090, 4092</td>
<td>Lab report (rubrics)</td>
<td>3050</td>
<td>1015 (Yr1 cycle); 3013 (Yr 2 cycle)</td>
<td>3 years</td>
<td>2009, 2012</td>
<td>75%</td>
</tr>
</tbody>
</table>

Assessment Results Summary (direct measures) 2009: For the summative assessment (end of program), the decision was made to focus on direct assessment for all indicators. Summative data for Indicators were collected in the Fluid Mechanics and Lab (3050) course. In this course students completed four experiments where they were required to develop laboratory reports. The scoring rubrics for Indicator #1 was completed by the Graduate Lab Manager to assess student performance through observations and rubrics for Indicators #2 and 3 were completed by the faculty. The percent of the students that demonstrated each criterion were as follows: Indicator #1 - 78%; Indicator #2 - 72%; and Indicator #3 - 66%.

Evaluation and Actions 2010: The faculty who used experiments in their courses met in the fall of 2007 and 2008 to review the formative data and make recommendations for changes during those academic years. The assessment results were evaluated by the faculty at a retreat held in August of 2010. The summative assessment results were evaluated by the faculty at a retreat held in August of 2010. Based on the analysis of the results, the faculty recommended additional formative assessment asking faculty in Circuit Theory and Lab (2040) and Engineering Electronics and Lab (2016) to provide the students the rubrics for Indicators 2 & 3 and give them formal feedback making their scores a part of the grade where appropriate. For Indicator #1, the Graduate Lab Managers were asked to attend a seminar on how to observe students in the laboratory and complete the rubric for lab practices and the use of instrumentation. Based on results, faculty were asked to provide the scoring rubrics with the appropriate lab assignments so students could see how they would be evaluated.

Second-Cycle Results Summary (direct measures) 2012: The second cycle summative data were again taken in the 3050 course for all indicators. Based on actions taken as a result of the 2006 evaluation process, the following improvements were seen in 2012: Indicator #1 up 10% (88%); Indicator #2 up 6% (78%), Indicator #3 up 4% (70%).

Evaluation and Actions 2013: The faculty who used experiments in their courses met in the fall of 2010 and 2011 to review the formative data and make recommendations for changes during those academic years. The assessment results were evaluated by the faculty at a retreat held in August of 2010. During the August 2013 department retreat, the faculty teaching the laboratory courses appointed a committee to review the scoring rubrics for clarity. The committee will also meet with the Graduate Lab Managers to review the rubrics for Indicator #1. Their findings will be reported to the laboratory courses faculty who will make recommendations to the faculty. As a result of these deliberations, minor adjustments were made in the scoring rubrics for clarity.
TREND LINE

DESIGN & CONDUCT EXP
ANALYZE & INTERPRET DATA
Satisfactory/Exemplary Rating

Threshold = 90%
82% 78% 88%

Threshold = 85%
62% 72% 78%

Threshold = 75%
58% 66% 70%

Display materials available at visit:
- Indicator #1, 2, 3 laboratory assignment sheets with rubrics and samples of lab reports for summative assessment
- Sample of Laboratory reports and results from 2010 formative assessments
- Copies of revised rubrics as a result of 2013 actions
- Senior Survey questions and results with faculty evaluation
- Minutes of department Laboratory sub-committee meetings where recommendations were made 2013
- Minutes of faculty retreat where actions were taken in 2010, 2013
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Performance Indicators</th>
<th>2009</th>
<th>2012</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaming</td>
<td>Research and Gather Information</td>
<td>61%</td>
<td>72%</td>
<td>84%</td>
</tr>
<tr>
<td></td>
<td>Fulfill team roles</td>
<td>50%</td>
<td>65%</td>
<td>72%</td>
</tr>
<tr>
<td></td>
<td>Share work</td>
<td>58%</td>
<td>62%</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>Listens</td>
<td>70%</td>
<td>89%</td>
<td>91%</td>
</tr>
<tr>
<td>Ethics</td>
<td>Know the code of ethics</td>
<td>45%</td>
<td>64%</td>
<td>77%</td>
</tr>
<tr>
<td></td>
<td>Analyze ethical issues</td>
<td>32%</td>
<td>56%</td>
<td>74%</td>
</tr>
<tr>
<td>Life Long Learning</td>
<td>Conduct independent research</td>
<td>64%</td>
<td>68%</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>Identify opportunities for continued education in the field</td>
<td>57%</td>
<td>67%</td>
<td>86%</td>
</tr>
<tr>
<td></td>
<td>Indicates interest in continuing education</td>
<td>65%</td>
<td>76%</td>
<td>87%</td>
</tr>
</tbody>
</table>
COMMON MISTAKES

• Too many data, not enough information
  • Reporting numbers or percentages without putting them into context
    • How many students in cohort
    • How many students provided data
• Not describing how the data are evaluated
• Using very complex charts describing your assessment processes
COMMON MISTAKES

• Discussing all outcomes/objectives at once instead of one at a time.
• Using the terms “objectives” and “outcomes” interchangeably.
• Referencing the outcomes/objectives by numbers or letters that refer back to a chart. Don’t require the reader to go back in the self-study for the reference.
## COMMON MISTAKES

### MAPPING IN
**SELF STUDY REPORT**

Example

<table>
<thead>
<tr>
<th>Program Educational Objectives</th>
<th>Supporting Student Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>a, b, c, e, k, j</td>
</tr>
<tr>
<td>2.</td>
<td>d, g, l</td>
</tr>
<tr>
<td>3.</td>
<td>e, f, l, j, l</td>
</tr>
<tr>
<td>4.</td>
<td>h, l, j</td>
</tr>
</tbody>
</table>
## BEST PRACTICE

### MAPPING IN
SELF STUDY REPORT
Example

<table>
<thead>
<tr>
<th>Program Educational Objectives</th>
<th>Supporting Student Outcomes</th>
</tr>
</thead>
</table>
| 1. Be effective in engineering design and the practical application of engineering theory | a) ability to apply knowledge of math & science  
b) ability to design and conduct experiments/ analyze data  
c) ability to design a system, component, or process to meet needs with realistic constraints  
e) ability to identify, formulate, and solve engineering problems  
k) ability to use the techniques, skills, and modern engineering tools needed for engineering practice  
j) knowledge of contemporary issues |
| 2. Exhibit teamwork and effective communication skills | d) ability to function on multidisciplinary teams  
e) ability to communicate effectively  
f) a willingness to assume leadership roles and responsibilities |
| 3. Be characterized by effective leadership skills and high standards of ethics | e) ability to identify, formulate, and solve engineering problems  
f) understanding of professional and ethical responsibility  
i) Recognition of and ability to engage in lifelong learning  
j) knowledge of contemporary issues  
l) a willingness to assume leadership roles and responsibilities |
| 4. Expand their knowledge and capabilities | h) broad education to understand effect of engineering solutions in a global, economic, environmental, and societal context  
i) Recognition of and ability to engage in lifelong learning  
j) knowledge of contemporary issues |
SUMMARY

• Keep the report focused.
• Have someone read your report that is unfamiliar with your program. If they don’t understand it, chances are neither will the visiting team.
• There is elegance in simplicity.
Assessment

- Indicators of student performance have not been defined and/or no *a priori* level of student performance has been established.
- The program uses only anecdotal results (versus measured results).
- The program relies on course grades as assessment for one or more student outcomes.
- There is an over-reliance on student self-assessment (e.g., surveys) as opposed to assessment methods based on actual student performance.
- Assessment data are being collected for only some outcomes
CRITERION 4 - COMMON ISSUES
CONTINUOUS IMPROVEMENT

Processes

- The assessment and evaluation processes are not documented.
- The program cannot demonstrate that the processes do what they claim.
- The assessment, evaluation and improvement cycle is not complete.
CRITERION 4 - COMMON ISSUES
CONTINUOUS IMPROVEMENT

Evaluation

• The data collected are not analyzed and used as input to a program improvement process.
• The continuous improvement process appears to ignore evidence that students are not attaining the student outcomes at the expected level of student performance.
• The evaluation of data does not provide the information needed to make program improvements.
CRITERION 4 - COMMON ISSUES
CONTINUOUS IMPROVEMENT

Results

- Program improvement plans are developed but not implemented.
- There is no documentation of how the results of assessment and evaluation processes are used to determine needed program improvements.
- Results of the evaluation of student outcomes are not used to make needed improvements to the student outcomes.
- There is no evidence that improvement efforts are being assessed and evaluated.
CHECK FOR UNDERSTANDING #10

1. Name three audiences for whom results of assessment can be useful
2. What is the difference between data and information?
LESSONS LEARNED?

• Cannot measure everything
• “You don’t have to be bad to get better”
  • Fear factor impedes risk-taking
• Each outcome should be defined by a few well-stated performance indicators
  • Identify specific attributes required to demonstrate achievement of the outcome
  • Answer the question, “What do we look for as evidence of outcome achievement?”
  • Reflect the uniqueness of individual programs
CASE STUDY EXERCISE

At your table: Ask someone to scribe

- Discuss, identify and list the strengths and weaknesses of Criterion 2 (Program Educational Objectives)
- Discuss and identify the strengths and weaknesses of Criterion 3 (Student Outcomes)
- Discuss and identify the strengths and weaknesses of Criterion 4 (Continuous Improvement)
- Be prepared to report out
THINGS I WISH I HAD KNOWN:

✓ Distinctions between classroom and program assessment
✓ Importance of defining student outcomes
✓ Capitalize on what is already being done
✓ One size does not fit all
✓ You don’t have to measure everything all the time
✓ More data are not always better
✓ Don’t let perfection stand in the way of progress
LEADERSHIP

Context
- Faculty Culture
- Change Dynamics
- Resistance

Process
- Group Dynamics
- Understanding Differences
- Evolving Assessment Culture

Tools
- Communication
- Action Agendas
- Facilitation Tools

Progress
- Sustainability
- People
- Perspective
CHALLENGE OF FACULTY INVOLVEMENT

- Continuous quality improvement is a human process
- Faculty are critical to success
  - Own the student outcomes and indicators
  - Evaluate results of assessment
  - Identify and design areas for improvement
  - Implement changes
  - Assess impact
EXPLORE OUR BELIEFS ABOUT “FACULTY”

• What do we know about faculty?

• Our beliefs about faculty can influence and hamper how we perceive new information

• Our beliefs result in limited or biased conversations and expectations
THERE IS NO SUCH THING AS A "FACULTY TYPE"

Ostrich

Freedom defender

CAVE dwellers

Passive Aggressive

Innovators

THINKING STRATEGICALLY ABOUT ENGAGING FACULTY
APPLICATION
DEVELOPING STRATEGIES FOR FACULTY ENGAGEMENT

Driving Forces (Motivators)
- Little or no effort = 3
- Moderate effort = 2
- Difficult = 1

Restraining Forces (Barriers)
- Little Impact = 1
- Some Impact = 2
- Considerable Impact = 3

Engagement

PRIORITY

#7
#3
#1
#8
#4
#2
#9
#6
#5

Positive Impact

Considerable Impact = 3
Moderate effort = 2
Little or no effort = 3
Little Impact = 1
Some Impact = 2
Considerable Impact = 3

Copyright 2013 ABET
Considerable Impact = 3
Impact Created
Little Impact = 2
Little or no effort = 3
Moderate effort = 2
Difficult = 1
Effort Required

Little Impact = 1
Some Impact = 2
Considerable Impact = 3
Impact Created

#7 #3 #1
#8 #4 #2
#9 #6 #5

PRIORITY
IDENTIFYING MOTIVATORS AND BARRIERS TO FACULTY INVOLVEMENT

Step 1: Force Field Analysis (15 minutes):

• In your team, use your post-its to individually brainstorm (5 minutes) driving forces (things that promote faculty engagement) and restraining forces (barriers to faculty participation). Place your post-its on the flip chart on the appropriate side.

• Once all of the ideas are on the flip chart, use an affinity process to organize ideas and identify the major factors on each side. Prioritize the top three on each side that the team feels are the most significant. If you have a large number of items (over eight), use a modified nominal group technique to reduce a large number of items to a smaller list of high priority items. (10 minutes)
IDENTIFYING MOTIVATORS AND BARRIERS TO FACULTY INVOLVEMENT

Step 2: Strategize (20 minutes):

• Divide your team into 3 groups of two/three to develop strategies.
• Each small group should focus on one driving and one restraining force and propose strategies. That is, what can a program do to capitalize on those things that build on the promoters to encourage faculty to participate and what can be done to reduce the barriers to their participation? Consider actions that will reinforce the drivers and/or reduce the barriers.
• **Be specific.** For example, don’t say “more money” but be specific about strategies a program might take to shift resources or develop new resource streams.
IDENTIFYING MOTIVATORS AND BARRIERS TO FACULTY INVOLVEMENT

Step 3: Team Consensus (25 minutes):
• Each small group report to the full team to get their input on suggested strategies.
• The full team should reach consensus and finalize the strategies.

Step 4: Decision Matrix (10 minutes):
• The final step is to determine which strategies to focus on first. This can be done with a decision matrix. (pages 217 & 256)
• For each strategy, consider the ease of implementing the strategy and the positive impact it is expected to have.
• After assigning each implementation strategy a score, list each strategy from #1 - #9 on your flip chart and be prepared to report out.
CHECK FOR UNDERSTANDING #11

1. What is the purpose of the force field analysis?
2. What are the two dimensions of a decision matrix?

Remember, the key is intentionality. These methods are designed to help you to be intentional and strategic in your decision making.
LEADERSHIP

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WHAT IS KNOWN ABOUT CHANGE?

- Change is a process, *not* an event
- Individuals, not organizations, change—one by one
- Change is highly personal—each individual sees it in terms of how it affects him/her and work
- People go through phases, or stages, when trying to adopt a change
- Stages can be predicted and planned for
STAGES OF CHANGE

**Denial**: inability to picture or understand impending change

**Resistance**: wide variety of behaviors designed to avoid dealing with change

**Experimentation**: employees begin to make new concepts, processes, or practices “their own”

**Commitment**: program experiences general, wide acceptance of the new way of doing things (usually short-lived before the next change cycle)
COMMON CHANGE REACTION: WHAT DO THEY NEED?

• Ready and Willing
  ▪ Encouragement, reinforcement

• Confused
  ▪ Facts and information, planning

• Withdrawn
  ▪ Personal contact and involvement in vision/strategy

• Angry
  ▪ Needs to be heard/understood, then involved in vision/strategy
WAYS TO SUCCESSFULLY ROLL OUT CHANGE

• Communicate, communicate, communicate
  ▪ Make it clear what that “future state” looks like
  ▪ Explicitly define what the change is, who will be involved, how it will be done and what’s in it for me?
    ▪ What, who, how, WIIFM
• Use storytelling/narrative of other successful programs to help demonstrate that it can be done (vision of success)
WAYS TO SUCCESSFULLY ROLL OUT CHANGE

- *Involve* everyone, especially the resistors
- Use inclusive language.
- Set guide posts for others to follow, without telling others “how” to do it.
- What kinds of support (interventions) might enable a person to move to the next level?
- Recognize those participating
LEADERSHIP

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FACULTY RESISTANCE

- Negative view of assessment
- Always starting over
- Lack understanding
- Lack motivation
TO DEVELOP SUCCESSFUL PROGRAM ASSESSMENT/CQI PROCESSES:

- Address faculty concerns
  - Reduce workload of massive data collection processes
  - Increase confidence in the process (produce credible evidence)
- Develop a **shared** understanding of best practice for program assessment
  - Tension between desire to be autonomous and yet wanting someone to tell us what to do
- Move from focus on individual courses to cumulative effect of learning at the program level
RESISTANCE IS HEALTHY

• Expect resistance - it is a normal and healthy reaction.
• People always resist things that they perceive not to be in their best interests.
• Resistance is an expression of power — the ability to not get what you don’t want.
• The greater the individual’s ability to resist, the less likely he/she will end up a “victim.”
# RESISTANCE

<table>
<thead>
<tr>
<th>Want it</th>
<th>I get it</th>
<th>I don’t get it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winner (+)</td>
<td>Victim (−)</td>
<td>Loser (−)</td>
</tr>
<tr>
<td>I don’t want it</td>
<td>Resister (+)</td>
<td></td>
</tr>
</tbody>
</table>
PARADOXICAL THEORY OF CHANGE

People get “stuck” in the current state. They will not be “unstuck” until they can fully appreciate current state.
LEVELS OF RESISTANCE

1. Need for additional information
   “I just need to clarify some things so I have a better picture of what’s happening.”

2. Emotional attachment to current situation
   “I have too much at stake to buy in.”

3. Values-based attachment to current situation
   “This is in total conflict with my beliefs about how an organization should be run.”
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WORKING WITH GROUPS

• Groups are living, human systems
  • Unique ‘personality’, energy, dynamic patterns
• Presumed collective intent
• Presumed specific outcome – linked to a desire to move forward
THREE PREDOMINANT GROUP BEHAVIORS

- Task-Oriented Behaviors
  - Summarizing
  - Bulldozing
  - Recognition Seeking

- Self-Oriented Behaviors
  - Info-Seeking
  - Consensus Seeking
  - Info-Seeking

- GroupBehaviors
  - Initiating
  - Encouraging
  - Compromising
  - Harmonizing

- Group-Building Behaviors
  - Examples?

Examples?
“TAKING IT IN” DIFFERENTIATED INSTRUCTION

Sequential: 

“I love that concept!” or “I never noticed that.”

“Why is this important?” or “Can I skip around in the book?” or “What’s the relevance?”

Global: 

“I see.” or “Look here.”

“I hear you.” or “That rings a bell.”

“What steps are involved?” or “Exactly how will this work?”

“Let me think about that.” or “I noticed you changed the wall chart.”

“Give me an example.” or “I never noticed a thing about that chart.”

Active and Reflective 

Sensing and Intuitive 

Visual and Verbal
“Well, what I was thinking is that first, you’d look for direct assessment examples, such as grades. The data show these are easiest to find. Next, you’d find indirect assessments, such as improved perception of the importance of math. These are more difficult to find…I’ll have to think about ways to do that.”
**HOW WELL DO YOU KNOW YOUR TEAMMATES?**

<table>
<thead>
<tr>
<th>Name</th>
<th>Active/Reflective</th>
<th>Sensing/Intuitive</th>
<th>Visual/Verbal</th>
<th>Sequential/Global</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXX</td>
<td>A</td>
<td>I</td>
<td>Vb</td>
<td>S</td>
</tr>
</tbody>
</table>

**Legend:**
- **A**: Active
- **I**: Intuitive
- **Vb**: Visual/Verbal
- **S**: Sequential/Global
SO WHAT?

• As a leader, how does thinking about “style” help you in engaging others in the process?
• What does someone “need?”
  – What strategies would you use to appeal to someone who was primarily:
    Table 1 & 6: Active / Reflective
    Table 2: Sensing / Intuitive
    Table 3: Visual / Verbal
    Table 4 & 5: Sequential / Global
LEADERSHIP

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- People
- Perspective
EVOLVING CULTURE OF ASSESSMENT
Process of Developing a “Culture”

- **Beginning LEVEL ONE**
  - Tolerated
  - Isolated
  - Periodic

- **Progressing LEVEL TWO**
  - Anticipated
  - Connected
  - Episodic

- **Maturing LEVEL THREE**
  - Celebrated
  - Integrated
  - Characteristic

There is minimal evidence that the assessment program is stable and will be sustainable. Assessment findings are beginning to be incorporated into program reviews and the self-study of institutional effectiveness. Student learning has become central to the institution, and student learning, performance, and achievement are celebrated.
## Process of Developing a Culture

<table>
<thead>
<tr>
<th>Climate</th>
<th>Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEGINNING</td>
<td>PROGRESSING</td>
</tr>
<tr>
<td>Isolated</td>
<td>Pervasive</td>
</tr>
<tr>
<td>Temporary</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Personality Driven</td>
<td>Structurally Driven</td>
</tr>
<tr>
<td>Surface</td>
<td>Embedded</td>
</tr>
<tr>
<td>External</td>
<td>Internal</td>
</tr>
<tr>
<td>Program Accreditation</td>
<td>Improvement &amp; Validation</td>
</tr>
</tbody>
</table>
EVIDENCE OF CAMPUS CULTURE OF CONTINUOUS IMPROVEMENT

- Written Materials
- Formal & Informal Policies and Procedures
- Organizational Structure
- Social Knowledge
- Reward Structure
- Vocabulary
- Rites & Rituals
LEADERSHIP

- **Context**
  - Faculty Culture
  - Change Dynamics
  - Resistance

- **Process**
  - Group Dynamics
  - Understanding Differences
  - Evolving Assessment Culture

- **Tools**
  - Communication
  - Action Agendas
  - Facilitation Tools

- **Progress**
  - Sustainability
  - People
  - Perspective
EFFICIENT LEADERSHIP

Fundamental issues for leaders:

- How to promote effective communication
- How to conduct effective meetings
- How to maximize group productivity through the use of facilitation tools
LISTENING TECHNIQUES

• Critical Listening
  ▪ Separate fact from opinion.

• Empathetic Listening
  ▪ Don’t talk- listen.
  ▪ Don’t give advice- listen.
  ▪ Don’t judge- listen.

• Creative Listening
  ▪ Exercise an open mind.
  ▪ Supplement your ideas with another person’s ideas and vice versa.
LISTENING SKILLS

• Stop talking.
• Engage in one conversation at a time.
• Empathize with the person speaking.
• Ask questions.
• Don’t interrupt.
• Show interest.
LISTENING SKILLS

• Concentrate on what is being said.
• Don’t jump to conclusions.
• Control your anger.
• React to ideas, not to the speaker.
• Listen for what is not said. Ask questions.
• Share the responsibility for communication.

It is not personal!
Application: Role Play

GETTING FACULTY ENGAGED
TRIAD PRACTICE

• Divide into groups of three to practice giving feedback
  – Use roles provided
    • Assessment Leader
    • Faculty member
    • Observer/feedback
  – Switch roles
DEBRIEF

• What was the hardest part of the exercise?
• How did you feel as the faculty member?
• How did you feel as the leader?
• Did you feel capable of providing feedback?
  – Empathetic?
  – “Yes” responses?
  – Good listener?
EFFECTIVE MEETINGS

Elements of a well-developed agenda (meeting planner)

– Topics in logical order (including a sentence or two that defines each item and its relevance)

– Process used for coming to a decision (e.g., brainstorming, multi-voting, etc.) and not simply state “discuss…”

– Team roles assigned
PRIMARY TEAM ROLES

- **Leader**: Develops the agenda; leads team through problem solving process; provides structure and guidance to allow maximum participation; influences team decisions equally with other members.
- **Recorder**: Summarizes discussion and material generated during the working meetings.
- **Timekeeper**: Makes sure the team stays on its time budget for the various tasks.
- **Issue Bin/Action Items**: Records items placed in the issue bin and all items which need action by team members.
PRODUCTIVE MEETINGS

• Plan ahead!
• Time guideline (amount of time allotted for each agenda topic)
• Item type—whether the item requires discussion or decision, or is just an announcement
• Agendas for productive meetings generally have the following activities:
  – Contact before work (approx. five minutes) activity used to free people’s mind and encourage bonding
  – Review of agenda
  – Breaks (for long meetings)
  – Issue Bin items
  – Meeting evaluation
PRODUCTIVE MEETINGS

• Keep discussion focused on the topic and moving along (determine what goes in ‘issue bin’)

• Intervene if discussion becomes ‘multiple conversations’
PRODUCTIVE MEETINGS

• Tactfully prevent anyone from dominating or being overlooked
• Bring discussion to a close (e.g., summarize)
• Take minutes
  – Be sure someone has responsibility to record key subjects and main points raised, decisions made including who has agreed to do what and by when, items deferred to a later time - **ROTATE THIS DUTY**
PRODUCTIVE MEETINGS

• Adhere to the “100-mile” rule.
  – Once the meeting begins everyone is expected to give it their full attention.
  – No one should be called from the meeting unless it is so important that the disruption would occur even if the meeting was 100 miles away from campus.

• Agree on use of media while in the meeting (email/text)—distraction to them and a distraction to others
AGENDA PREPARATION

Agenda should be sent out at least 5 days before the meeting

- Time to complete “homework”
- Provide any requested responses
- As the leader, you need to set aside specific time to plan the meeting
  - It may take as much as an hour to prepare the agenda
  - Be sure minutes of previous meeting have been sent
  - Follow up with any unfinished business
  - Review action items
  - Prepare materials that need to be sent out with agenda
LEADERSHIP

Context
- Faculty Culture
- Change Dynamics
- Resistance

Process
- Group Dynamics
- Understanding Differences
- Evolving Assessment Culture

Tools
- Communication
- Action Agendas
- Facilitation Tools

Progress
- Sustainability
- People
- Perspective
FACILITATION TOOLS

Use techniques that keep the momentum

• In this Institute, we have used:
  – Silent brainstorming/affinity
  – Nominal group process
  – Force field analysis
  – Modified nominal group process
  – Decision matrix
  – Issue bin

• Tools are designed to maximize the involvement of participants, structure the conversations, move the process forward.
CHECK FOR UNDERSTANDING #12

1. What are two types of styles of learning?
   – Active / Reflective
   – Sensing / Intuitive
   – Visual / Verbal
   – Sequential / Global

2. One thing that is important about listening?

3. Identify two facilitation tools that we have discussed/used during the Institute:
   – Plus/Deltas
   – Force field analysis
   – Decision matrix
   – Nominal group process
LEADERSHIP

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THOUGHTS ABOUT SUSTAINABILITY
WHY SUSTAIN?

• Expectation for on-going evaluation of outcomes
• Accountability to stakeholders/constituents
• Avoid stops and start all over again
WHAT NOT TO SUSTAIN?

• Individual ownership of the process
• Irrelevant information collection
  – More data are not necessarily better
• Burdensome processes
FOUR THINGS TO SUSTAIN

1. Meaningful structures
2. Meaningful uses of assessment data
3. Reasonable workload that springs from the work faculty and staff already do
4. A committed culture
Build assessment into:

- Policies and procedures
- Program governance:
  - standing committee
  - regular place on agenda
- Strategic planning
  - Decision-making tools:
    - Departmental plans
    - Program Review
1. MEANINGFUL STRUCTURES

• Build visibility:
  – Resource support
    • Be creative
• Connect assessment work to relevant committees, like Curriculum and Tenure review
• Consider incorporating the scholarship of teaching and learning as elements in tenure and promotion decisions
• Consider including collecting, analyzing, and using assessment data as part of the job description
2. MEANINGFUL USES OF ASSESSMENT DATA

- Expect, encourage, and communicate the connection between assessment data and curricular, pedagogical, and service changes.
- Encourage reflection on data and on changes that result from it.
- Allow analysis and reflection to fit departmental culture.
3. REASONABLE WORKLOAD

• Proceed from what faculty and staff already do—but help shape it into good assessment
  • rotation plans on committees
  • distributed functions
  • “champions” that educate, inform, and coach
• Use pilot approaches to see what works—and doesn’t—instead of “one size fits all”
4. COMMITTED CULTURE

- Build a “community of scholars” environment where interesting questions arise from assessment data—a culture of inquiry and evidence

- Have conversations about assessment
  - Intentional
  - Regular
  - Inclusive
4. COMMITTED CULTURE

• Build
  – Leadership
  – cadre of peer advisors

• Weave assessment into curriculum design and approval processes

• Map curriculum to determine how outcomes are developed over time

• Consider integrative assessments
4. COMMITTED CULTURE

- User-friendly processes and data systems
- Built-in peer support
- Acknowledgement
- Celebrations
BEGINNING OF “CLUES” THAT PROCESS IS NOT SUSTAINABLE

- One year of data reported
- Changes not evidence-based
- No systematic data collection process
- Student learning is assessed by single method
COMMON MISTAKES IN THE ASSESSMENT PROCESS: People
Most important resource above all is PEOPLE.

- Faculty
  - Don’t squander faculty time.
  - Some faculty should be involved in:
    - Assessment committee work
    - Data collection
    - Data analysis
    - Outcome “champion”
Student Outcome: An understanding of professional and ethical responsibility

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Educational Strategies</th>
<th>Method(s) of Assessment</th>
<th>Where summative data are collected</th>
<th>Where formative data are collected</th>
<th>Length of assessment cycle (yrs)</th>
<th>Yr/Sem of summative data collection</th>
<th>Threshold for Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knows code of ethics for the discipline</td>
<td>2001, 2060, 3001</td>
<td>Locally developed exam</td>
<td>3001</td>
<td>2001 (yr 1 of cycle), 2060 (yr 2 of cycle)</td>
<td>3 years</td>
<td>2009, 2012</td>
<td>80%</td>
</tr>
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<td></td>
<td></td>
<td>Senior Surveys</td>
<td>On-line survey</td>
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<tr>
<td>2. Ability to evaluate the ethical dimensions of a problem in the discipline</td>
<td>3001, 4092</td>
<td>Case study review/rubric</td>
<td>4092</td>
<td>3001 (yr. w)</td>
<td>3 years</td>
<td>2009, 2012</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Senior Surveys</td>
<td>On-line survey</td>
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</tbody>
</table>

Assessment Results Summary (direct measures) 2009: Summative data were collected in 3001. For the summative assessment (end of program), the decision was made to focus on the direct assessment of faculty developed examination as the primary assessment data for both indicators. The assessment of indicator #1 was done in course 3001 after a review of material covered earlier in the program. Because the indicator is at the “knowledge” level, a multiple choice/true-false exam was given to see how well the student had learned the material. For indicator #2, a case study was chosen from http://ethics.tamu.edu/ethicscasestudies.htm and was used in the 4092 class. The scoring rubrics were completed by the faculty. The percent of the students that demonstrated each criterion were as follows: Indicator #1 - 66%; Indicator #2 - 58%.

Evaluation and Actions 2010: The faculty who integrated ethics into their courses met in the fall of 2007 and 2008 to review the formative data and make recommendations for changes during those academic years. The assessment results were evaluated by the faculty at a retreat held in August of 2010. Indicator #1: Based on the analysis of the results, the faculty who were introducing and/or reinforcing the code of ethics in their courses were asked to reinforce the importance of knowing the code of ethics for the discipline. They were also encouraged to review the scores to see if there were common items missed and to reiterate the areas where students’ performance was weak. Indicator #2: Faculty were asked to provide the scoring rubrics to students with the case study so they could see how they would be evaluated. A sub-committee of the department Curriculum Committee was assigned to meet and review the performance indicators to be sure that they were appropriate. The Advisory Committee was also asked to provide feedback. It was recommended not to make any changes at this time. Faculty integrating ethics agreed to review their assignments to be sure that students were given adequate opportunities to learn the codes in the context of the discipline and to make students performance on the exam was an adequate portion of the overall grade for the unit.

Second-Cycle Results Summary (direct measures) 2012: The second cycle summative data were again taken in the 3001 for indicator #1 and 4092 for indicator #2. Based on actions taken as a result of the 2006 evaluation process, the following improvements were seen in 2008: Indicator #1 – +10% (74%); Indicator #2 - +12% (70%).

Evaluation and Actions 2013: The faculty who integrated ethics into their courses met in the fall of 2010 and 2011 to review the formative data and make recommendations for changes during those academic years. During the August 2013 department retreat, the faculty agreed that adequate progress had been made on both of the indicators and no further action would be taken at this time. However, at the end of the 2013 assessment cycle for ethics if the trend continues upward the committee will review whether or not the thresholds should be raised in an effort to continually improve student performance.
Most important resource above all is **PEOPLE**.

- **Faculty**
  - Don’t squander faculty time.
  - *Some* faculty should be involved in:
    - Assessment committee work
    - Data collection
    - Data analysis
    - Outcome “champion”
  - **All** faculty should be involved in:
    - Affirming performance indicators for outcomes
    - Mapping curriculum to performance indicators
    - Reviewing results—at some level
    - Implementing recommendations—at some level
PEOPLE – WHO DO WE INVOLVE?

• Students
  • Avoid a “stealth” assessment process.
  • Students should be knowledgeable about the STUDENT OUTCOMES.
  • Students should know the level of performance that is expected of them. Students should be given timely feedback on their performance related to the student outcomes.
  • Research on learning is definitive:
    • Students learn best when expectations for their performance is clear AND they get timely feedback on their performance.
MANAGING UPWARDS

• You need support, cooperation and commitment from your “supervisor”
• You are in charge of managing her/his expectations and keeping communication channels open
• This process is not his/her priority
MANAGING UPWARDS

• You need support, cooperation and commitment from your “supervisor”
• You are in charge of managing her/his expectations and keeping communication channels open
• This process is not his/her priority
• Plan your communication
  ▪ Clearly define the issues (What do you need? Why?)
  ▪ Present possible solution which not only benefit your needs but also his/her’s (WIIFM—What’s in it for me).
  ▪ LISTEN…be prepared to collaborate
  ▪ Provide “talking points”
LEADERSHIP

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PERSPECTIVE

• Your most basic beliefs and attitudes can influence how others view the process:
  – The language you use,
  – The passion (or lack thereof) you demonstrate,
  – The seriousness of commitment you show.
A College-level assessment committee was called the "Overlords."

A College desiring to develop a "culture of assessment" produced two documents to guide the program assessment process:
- Student Learning Assessment Methods
- Student Learning Assessment Program
  - Referred to as "SLAM" and "SLAP"

A College had an "Assessment Day" where programs made presentations on their assessment processes. A trophy was given to the program that best demonstrated "closing the loop."
  - It was called the "Loopie" trophy.
EXTENT OF THE COMMITMENT THAT YOU DEMONSTRATE

• Are you dedicated to the value of the continuous improvement process for student learning?
  – Does your conversation with colleagues revolve around what ABET wants or what is best for student learning?
  – Do your interactions with colleagues give the impression that you are a prisoner in this process?
WILLINGNESS TO ADMIT YOU DON’T KNOW SOMETHING

• Don’t let need of “perceived” perfection stand in the way of progress.
  – Strive for excellence, not perfection.
• This is a process and will change over time—need to put “continuous” back into “continuous improvement.”
• Listen to your colleagues.
• Critical error to believe that a previous “clean” accreditation visit means that you don’t have to change anything—EVER!
Enthusiasm IS contagious.

What you say and HOW you say it is important.

- Do you begin by apologizing when you ask your colleagues to do something for program assessment?
- Do you make promises that you can’t keep?
  - This won’t take any time!
- Do you blame ABET for the workload that has been created?
- Do you express doubts about the value of the process?
SUMMARY

• Common mistakes in the assessment process are not just related to data collection, evaluation, and improvements.
• Assessment is a human process and wise involvement of human capital is critical to its success.
• Attitudes and conversations are critical in establishing an environment for collegial engagement.
  – “The quality of an institution is known by the quality of its conversations.”
CHECK FOR UNDERSTANDING #13

1. What is at least one thing that is important to remember when you need support from “supervisor?”
   - Clearly define the issues
   - Present possible solution
   - LISTEN…be prepared to collaborate
   - Provide “talking points

2. What are two things that are evidence of a culture of program assessment.
   - Written Materials
   - Formal & Informal Policies and Procedures
   - Organizational Structure
   - Social Knowledge
   - Reward Structure
   - Vocabulary
   - Rites & Rituals
## Self-Assessment

### Continuous Improvement of Program-Level Assessment of Student Learning

0-not in place; 1-beginning stage of development; 2-beginning stage of implementation; 3-in place and implemented; 4-implemented and evaluated for effectiveness; 5-implemented, evaluated and at least one cycle of improvement

<table>
<thead>
<tr>
<th>Stakeholder/Constituent Involvement (Those who have a vested interest in the outcome of the program)</th>
<th>Program Educational Objectives (Graduates performance after completing program)</th>
<th>Student Outcomes (Desired knowledge, skills, attitudes, behaviors, by the time students complete program)</th>
<th>Student Outcomes aligned with educational practices</th>
<th>Assessment Processes</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders are identified</td>
<td>Objectives are determined</td>
<td>Outcomes are identified</td>
<td>Desired performance is mapped to curricular practices and/or strategies (e.g., courses/ teaching methodology)</td>
<td>Assessment is on-going and systematic at the program level</td>
<td>Assessment data are systematically reviewed</td>
</tr>
<tr>
<td>Primary stakeholders are involved in identifying/affirming program educational objectives</td>
<td>Objectives are publicly documented</td>
<td>Number of outcomes are manageable</td>
<td>Practices/strategies are systematically evaluated using outcomes assessment data</td>
<td>Multiple methods are used to measure each outcome</td>
<td>Evaluation of results are done by those who can effect change</td>
</tr>
<tr>
<td>Primary stakeholders are involved in periodic evaluation of educational objectives</td>
<td>Number of objectives are manageable</td>
<td>Outcomes are publicly documented</td>
<td>Where necessary, educational practices are modified based on evaluation of assessment data</td>
<td>Both direct and indirect measures of student learning are used to measure outcomes</td>
<td>Evaluation of assessment data is linked to curricular practices/strategies</td>
</tr>
<tr>
<td>Sustained partnerships with stakeholders are developed</td>
<td>Objectives are aligned with mission statement</td>
<td>Outcomes are linked to educational objectives</td>
<td>Assessment processes are reviewed for effectiveness and efficiency</td>
<td>Evaluation leads to decision making/ action</td>
<td></td>
</tr>
</tbody>
</table>

[1] ABET
CAPSTONE SHARING
EVALUATION
HAVE A SAFE TRIP HOME!!
CONGRATULATIONS,
IDEAL Scholars!!!