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Assessment Plan Owner: General Education

Assessment Unit Information

✳ Select Assessment [2010-2012] Prescott Academic Plans Planning Form

✳ Program Name: PC_General Education

Contact Name: Edward Poon

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Contact Phone: 928 777 3752

✳ Public? Yes

Status of Assessment Plan

✳ Status of Assessment Planning = Approved; Improvement = Approved Plan

Program Mission Statement

✳ Program Mission Statement Recognizing its general and special missions in education, Embry-Riddle embraces a general education program. This course of study ensures that students possess the attributes expected of all university graduates. Encouraging intellectual self-reliance and ability, the general education program enables students, regardless of their degree program, to understand the significance of acquiring a broad range of knowledge.

Throughout the general education program, students gain and enhance competence in written and oral communication. They practice reasoning and critical thinking skills and demonstrate computer proficiency. As students engage in this course of study, they familiarize themselves with and investigate ideas and methodologies from several disciplines. These include the arts and humanities, the social sciences, the natural sciences, and mathematics. The program also helps students recognize interrelationships among the disciplines.

Promoting the appreciation of varied perspectives, the general education program provides intellectual stimulation, ensuring that students are broadly educated. This course of study empowers students to make informed value judgments, to expand their knowledge and understanding of themselves, and to lead meaningful, responsible, and satisfying lives as individuals, professionals, and concerned members of their society and the world.

Alignment of Program Mission Statement to University Mission

Select checkboxes below for all of the appropriate elements that indicate how your Unit Mission aligns with the University Mission Statement.

University Mission Statement:

At Embry-Riddle, our mission is to teach the science, practice and business of aviation and aerospace, preparing students for productive careers and leadership roles in service around the world.

Our technologically enriched, student-centered environment emphasizes learning through collaboration and teamwork, concern for ethical and responsible behavior, cultivation of analytical and management abilities, and a focus on the development of the professional skills needed for participation in a global community. We believe a vibrant future for aviation and aerospace rests in the success of our students. Toward this end, Embry-Riddle is committed to providing a climate that facilitates the highest standards of academic achievement and knowledge discovery, in an interpersonal environment that supports the unique needs of each individual. Embry-Riddle

Aeronautical University is the world's leader in aviation and aerospace education. The University is an independent, non-profit, culturally diverse institution providing quality education and research in aviation, aerospace, engineering and related fields leading to associate's, baccalaureate's, master's and doctoral degrees.

Preparing Students for Productive Careers **Yes**

Preparing students for leadership roles in service around the world **Yes**

Technologically enriched environment **Yes**

Emphasize learning through collaboration and teamwork **No**

Concern for ethical and responsible behavior **Yes**

Cultivate analytical abilities **Yes**

Cultivate management abilities **No**

Develop the professional skills needed for participation in a global community **Yes**

Facilitating the highest standards of academic achievement **No**

Facilitating knowledge discovery **Yes**

Providing an interpersonal environment that supports the unique needs of each individual **No**

Assessment Year in Review

Ad Hoc Improvements in Past Year (optional) In order to address general education in a more cohesive manner, the three campuses (Daytona Beach, Prescott, & Worldwide) have developed a unified framework. There has been university-wide formulation of and agreement upon general education requirements, core competencies, and program outcomes.

Collaboration with Others to Evaluate Assessment Results and Recommend Improvements For Fall 2010, there was collaboration with:
 Gen Ed Committee: consisting of Angela Beck (College of Arts & Science), James Helbling (College of Engineering), and Dorothea Ivanova (College of Aviation)
 Physics: Darrel Smith (chair)
 Economics: Robin Sobotta (chair), Ricardo Carreras, Javad Gorjidoz
 Mathematics: Hisa Tsutsui (chair), Jason Jacobs, Paul Hriljac
 Library: Evelyn Harris, Suzie Roth

Changes to Assessment Organization, Processes, Participants (optional) The previous Gen Ed Coordinator (academic year 2009 - 2010) was Sally Blomstrom. Edward Poon became Gen Ed Coordinator for the academic year 2010 - 2011.
 The Prescott Gen Ed committee was reconstituted this year, and now consists of 1 faculty member from each college. There are no longer any staff members on this committee.

Additional Information (optional)

Attach File(s) (optional)

System Information

Last Modified Date Wednesday, May 23, 2012 10:13:41 AM EDT
Last User to Modify dickeya

Assessment Plan Outcomes

Name	Description	Status	Public
PC_GENED_PO_01 Math			No
PC_GENED_PO_03 Speech			No
PC_GENED_PO_04 Research			No
PC_GENED_PO_06 Science			No
PC_GENED_PO_07 Tech			No
PC_GENED_PO_08 Economics			No

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Assessment Plan Outcomes

[PC_GENED_PO_01 Math](#)

Select Outcome to Assess from Master List of Outcomes

Instructions: Below, click the "BROWSE" button to:

- (REQUIRED) Select an outcome to assess from Master List of Program Outcomes ("BROWSE" -> "Master List of Program Outcomes" -> "GO" button).
- (OPTIONAL) Align outcome with any other applicable standards such as AABI, ABET, General Education Outcomes: ("BROWSE" -> "Standards" -> "GO" button).

* Select Outcome from Master List of Outcomes PC_GENED_PO_01 Math Apply knowledge of college-level mathematics for defining and solving problems.

* Assessment Outcome Title PC_GENED_PO_01 Math

Assessment Measures, Criteria for Success and Results

Measurement One

Outcome Title PC_GENED_PO_01 Math

* Means of Assessment Other (please specify below)

Description of 'Other' Means of Assessment Selected questions from the MA 241 final exam will be graded to assess critical thinking skills in mathematics.

Details of Assessment Measurement (Timeframe of Data Collection, Participants/Roles, etc.) Time-frame for Data Collection: Data will be collected in Fall 2010. Participants and roles: Participants are students enrolled in MA 241: Calculus and Analytic Geometry I in Fall 2010 (all 4 sections). Professors Jacobs and Hriljac will administer and grade the final exam. Other Details: Math 241 is a required course for all students in engineering (all branches), space physics, and meteorology. The same final exam is being used, so that data can be compared across various years. We are separating out the scores for individual questions so that we can discern and target problem areas more effectively.

* Criterion for Success At least 50% of the students will score above 50% (aggregate average) on the selected questions. (Students, especially freshmen, typically have trouble with critical thinking as it lies amongst the upper echelons of Bloom's taxonomy. Moreover, students generally do worse on the final exams than on targeted midterms (for a number of reasons); hence the modest criterion for success).

Assessment Results / Data Collected 92 out of 122 students (75%) in MA 241, Fall 2010, scored at least 50% on the critical thinking problems. (In fact 80 out of 122 students (65%) scored at least 66%.) Thus the criterion for success was achieved.

success was achieved.

Measurement Two

Means of Assessment	Other (please specify below)
Description of 'Other' Means of Assessment	Selected questions from the MA 241 final exam will be graded to assess problem-solving skills in mathematics.
Details of Assessment Measurement	Time-frame for Data Collection: Data will be collected in Fall 2010. Participants and roles: Participants are students enrolled in MA 241: Calculus and Analytic Geometry I in Fall 2010 (all 4 sections). Professors Jacobs and Hriljac will administer and grade the final exam. Other Details: Math 241 is a required course for all students in engineering (all branches), space physics, and meteorology. The same final exam is being used, so that data can be compared across various years. We are separating out the scores for individual questions so that we can discern and target problem areas more effectively.
Criterion for Success	At least 50% of the students will score above 50% (aggregate average) on the selected questions. (Students, especially freshmen, typically have trouble with problem solving as it lies amongst the upper echelons of Bloom's taxonomy. Moreover, students generally do worse on the final exams than on targeted midterms (for a number of reasons); hence the modest criterion for success).
Assessment Results / Data Collected	79 out of 122 students in MA 241, Fall 2010, got at least 50% on the optimization problems. 49 out of 122 students in MA 241, Fall 2010, got at least 50% on the related rates problems. 67 out of 122 students in MA 241, Fall 2010, got at least 50% on the optimization and related rates problems combined. Thus the criterion for success was met, as about 55% of the students scored above 50% (aggregate average) on the selected questions.

Measurement Three

Means of Assessment	Other (please specify below)
Description of 'Other' Means of Assessment	Final exam scores in MA 241.
Details of Assessment Measurement	Time-frame for Data Collection: Data will be collected in Fall 2010. Participants and roles: Participants are students enrolled in MA 241: Calculus and Analytic Geometry I in Fall 2010 (all 4 sections). Professors Jacobs and Hriljac will administer and grade the final exam. Other Details: Math 241 is a required course for all students in engineering (all branches), space physics, and meteorology. The same final exam is being used, so that data can be compared across various years. Comparison with scores from Fall 2009 gives us a baseline. Data from Spring 2010 is NOT used since the spring and fall cohorts in MA 241 are appreciably different (most of the students in the spring are those who failed the previous fall).
Criterion for Success	The fraction of students passing the final exam will be greater than that in Fall 2009.
Assessment Results / Data Collected	85 out of 122 students (70%) in MA 241, Fall 2010, scored at least 50% on the final exam. In contrast, 26 out of 36 students (72%) scored above 50% on the final exam in Fall 2009. Thus the criterion for success was not met. However, the difference between the two years is quite small and unlikely to be statistically significant. (For comparison, 28 out of 45 students (62%) scored above 50% on the final in Spring 2010. Note that most students in the spring semester are retaking MA241, having failed or dropped out in the fall semester. For this reason we hesitate the compare the fall data against the spring data).

Measurement Four

Means of Assessment	Other (please specify below)
Description of 'Other' Means of Assessment	Selected questions from a midterm test in MA 241 will be graded to assess problem-solving skills in mathematics.
Details of Assessment Measurement	Time-frame for Data Collection: Data will be collected in Fall 2010. Participants and Roles: Participants are students enrolled in Professor Jacob's sections of MA 241: Calculus and Analytic Geometry I in Fall 2010. Professor Jacobs will administer and grade the midterm. Other Details: Math 241 is a required course for all students in engineering (all branches), space physics, and meteorology. Because of the difficulty in coordinating midterms for different instructors, only one instructor's sections are used (Professor Jacobs is teaching 3 of the 4 sections).
Criterion for Success	At least 50% of the students taking the midterm test will pass the selected questions.

Assessment Results / Data Collected 70 out of 102 students (69%) scored above 60% on the critical thinking questions on the midterm. Hence the criterion that at least half of the students would pass the selected questions was achieved.

Measurement Five and Up

For Outcomes with more than four measurements, select means of assessment for measures five and up from the list below (check all that apply). Then list the details for measurements 5 and up in the areas below. Please number them appropriately in each text area, starting with number 5.

Capstone course / senior design project **No**

Exam in non-culminating course(s) **No**

Rubric-scored artifact in non-culminating course(s) **No**

End of course evaluations **No**

Focus group/structured interviews (students, faculty) **No**

ERAU Student Satisfaction Survey **No**

ERAU Graduating Student Survey **No**

ERAU Alumni Survey **No**

ERAU Employer Feedback Survey **No**

National Survey of Student Engagement (NSSE) **No**

Incoming Freshmen Survey (CIRP) **No**

Other national survey **No**

External or internal peer review **No**

Retention / graduation rates **No**

Employment placement / continuing education rates **No**

Other (Please specify below) **No**

Description of 'Other' Means of Assessment

Details of Assessment Measurement

Criterion / Criteria for Success

Assessment Results / Data Collected

Improvements

Assessment Outcome Title

Outcome Title PC_GENED_PO_01 Math

Use of Assessment Results

Have assessment results been used to make improvements? **Yes (Select all that apply below, then describe)**

Pedagogical modifications were made **Yes**

Course sequence was altered **No**

Technology-related changes were made **No**

Personnel-related changes were made **No**

Other **No**

Description of Improvements **A few changes were made to the final exam used for MA 241 so that the test scores would better reflect what students have actually learned. Although students succeeded in attaining the criteria for success in both critical thinking and in problem solving, they did not succeed by much as far as problem solving was concerned. Thus the instructor will modify some of his pedagogical techniques and stress the topic of problem solving for future offerings of MA 241.**

Attach File(s) (optional)

Planned Future Improvements

Indicate and describe any planned improvements. If new funds are required for planned improvements, you will also need to complete the next tab, "Mission Critical Budget Request".

Do assessment results indicate any critical improvements that must be made in the next fiscal year?

Description of Planned Improvements

Mission-Critical Budget Request

Assessment Outcome Title

Outcome Title PC_GENED_PO_01 Math

Mission-Critical Budget Request

Title of Budget Request

Details of Budget Request

Are capital funds required?

Total Amount of Operating Funds Requested

Salaries: \$

Duration:

Benefits: \$

Duration:

Duration:

Professional Development: \$

Duration:

Computer Hardware: \$

Duration:

Computer Software: \$

Duration:

Other Operating Funds: \$

Duration:

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[PC_GENED_PO_03 Speech](#)

Select Outcome to Assess from Master List of Outcomes

Instructions: Below, click the "BROWSE" button to:

1. (REQUIRED) Select an outcome to assess from Master List of Program Outcomes ("BROWSE" -> "Master List of Program Outcomes" -> "GO" button).
2. (OPTIONAL) Align outcome with any other applicable standards such as AABI, ABET, General Education Outcomes: ("BROWSE" -> "Standards" -> "GO" button).

* Select Outcome from Master List of Outcomes **PC_GENED_PO_03 Speech** Communicate ideas in non-written form, such as through oral presentations and visual media.

* Assessment Outcome Title **PC_GENED_PO_03 Speech**

Assessment Measures, Criteria for Success and Results

Measurement One

Outcome Title **PC_GENED_PO_03 Speech**

* Means of Assessment **Other (please specify below)**

Description of 'Other' Means of Assessment **Students enrolled in COM 219: Speech will demonstrate effective evaluation of their own speaking skills as exhibited through self-evaluations of speeches, online quizzes, and course evaluations.**

Details of Assessment Measurement (Timeframe of Data Collection, Participants/Roles, etc.) **Timeframe of Data Collection: Fall 2011 and Spring 2012 Participants and Roles: Students in Dr. Blomstrom's sections of COM 219.**

* Criterion for Success **Students enrolled in COM 219: Speech will demonstrate effective evaluation of their own speaking skills as exhibited through self-evaluations of speeches, online quizzes, and course evaluations. Specifically, the mean difference between student self-reports and instructor evaluations will be no more than 10%.**

Assessment Results / Data Collected **The mean difference between student self-report and instructor's evaluations was less than 3%. This criterion was successfully met.**

Measurement Two

Means of Assessment **Other (please specify below)**

Description of 'Other' Means of Assessment **Students enrolled in COM 219: Speech will demonstrate effective evaluation of their own speaking skills as exhibited through survey results using the Speaking and Listening Competencies for College Students as well as supplemental items from the Commission on Public Relations Education 2006 Report.**

Details of Assessment Measurement Timeframe of Data Collection: Fall 2011 and Spring 2012 Participants and Roles: Students in Dr. Blomstrom's sections of COM 219.

Criterion for Success Students enrolled in COM 219: Speech will demonstrate effective evaluation of their own speaking skilled as exhibited through survey results using the Speaking and Listening Competencies for College Students as well as supplemental items from the Commission on Public Relations Education 2006 Report. Specifically, the mean difference between student self-reports on the survey and instructor evaluations will be no more than 10%.

Assessment Results / Data Collected The mean difference between student self-report and instructor's evaluation was compared using MANOVA and paired T-tests; results indicated non-significant differences between student's perceptions of their speech skills and their instructor's perceptions. This criterion was successfully met.

Measurement Three

Means of Assessment

Description of 'Other' Means of Assessment

Details of Assessment Measurement

Criterion for Success

Assessment Results / Data Collected

Measurement Four

Means of Assessment

Description of 'Other' Means of Assessment

Details of Assessment Measurement

Criterion for Success

Assessment Results / Data Collected

Measurement Five and Up

For Outcomes with more than four measurements, select means of assessment for measures five and up from the list below (check all that apply). Then list the details for measurements 5 and up in the areas below. Please number them appropriately in each text area, starting with number 5.

Capstone course / senior design project **No**

Exam in non-culminating course(s) **No**

Rubric-scored artifact in non-culminating course(s) **No**

End of course evaluations **No**

Focus group/structured interviews (students, faculty) **No**

ERAU Student Satisfaction Survey **No**

ERAU Graduating Student **No**

Survey	
ERAU Alumni Survey	No
ERAU Employer Feedback Survey	No
National Survey of Student Engagement (NSSE)	No
Incoming Freshmen Survey (CIRP)	No
Other national survey	No
External or internal peer review	No
Retention / graduation rates	No
Employment placement / continuing education rates	No
Other (Please specify below)	No
Description of 'Other' Means of Assessment	
Details of Assessment Measurement	
Criterion / Criteria for Success	
Assessment Results / Data Collected	

Improvements

Assessment Outcome Title

Outcome Title PC_GENED_PO_03 Speech

Use of Assessment Results

Have assessment results been used to make improvements? **Yes (Select all that apply below, then describe)**

Pedagogical modifications were made **Yes**

Course sequence was altered **No**

Technology-related changes were made **No**

Personnel-related changes were made **No**

Other **No**

Description of Improvements These assessment measures are being adopted by other sections of speech and by other speech instructors to further evaluate students' self-perceptions of their growing speech skills. Moreover, these measures are to be used in the 2012-2013 academic year to not only assess but also to provide material for classroom discussion regarding audience, perception, and persuasive skills.

Attach File(s) (optional)

Planned Future Improvements

Indicate and describe any planned improvements. If new funds are required for planned improvements, you will also need to complete the next tab, "Mission Critical Budget Request".

Do assessment results indicate any critical improvements that must be made in the next fiscal year? **No**

Description of Planned Improvements

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PC_GENED_PO_04 Research

Select Outcome to Assess from Master List of Outcomes

Instructions: Below, click the "BROWSE" button to:

- (REQUIRED) Select an outcome to assess from Master List of Program Outcomes ("BROWSE" -> "Master List of Program Outcomes" -> "GO" button).
- (OPTIONAL) Align outcome with any other applicable standards such as AABI, ABET, General Education Outcomes: ("BROWSE" -> "Standards" -> "GO" button).

* Select Outcome from PC_GENED_PO_04 Research Conduct and report research accurately and in accordance with Master List of Outcomes professional standards.

* Assessment Outcome PC_GENED_PO_04 Research Title

Assessment Measures, Criteria for Success and Results

Measurement One

Outcome Title PC_GENED_PO_04 Research

* Means of Assessment Other (please specify below)

Description of 'Other' Means of Assessment COM122 students will take a post-instruction assessment test.

Details of Assessment Measurement (Timeframe of Data Collection, Participants/Roles, etc.) See attachment: [PC_GENED_PO_04 \[2010-12\] ASMEAS MEAS1 DET.pdf](#)

* Criterion for Success Students completing the post-instruction quiz will answer 80% of the questions correctly.

Assessment Results / Data Collected See attachment: [PC_GENED_PO_04 \[2010-12\] ASMEAS MEAS1 ASRES.xlsx](#)

Measurement Two

Means of Assessment Other (please specify below)

Description of 'Other' Means of Assessment Librarians will review a sampling of Bibliographies/Works Cited pages from research reports to ascertain that sources are being cited appropriately.

Details of Assessment Measurement Time-frame for Data Collection: Data will be collected in Fall 2010. Participants and roles: Participants are students enrolled in COM 122 in Fall 2010. The librarians will review a sampling of bibliographies/works cited from student research reports. Other Details: Instruction Librarians analyzed the result of the Project SAILS (Standardized Assessment of Information Literacy Skills) from last academic year and identified skills for which our students required instruction. Instruction Librarians modified library instruction sessions and created learning experiences for students to strengthen their information literacy skills in Documenting Sources and Understanding Economic,

Legal, and Social Issues. We will be using the questions provided by Project Sails as part of our instruction program. These instruction sessions will be presented in the Fall 2010 semester.

Criterion for Success 100% of the student research reports sampled will cite appropriate sources on their bibliographies/works cited pages and will demonstrate increased use of resources provided by ERAU and Hazy Library.

Assessment Results / Data Collected See attachment: [PC_GENED_PO_04 \[2010-12\] ASMEAS MEAS2 ASRES.xlsx](#)

Measurement Three

Means of Assessment

Description of 'Other'
Means of Assessment

Details of Assessment
Measurement

Criterion for Success

Assessment Results /
Data Collected

Measurement Four

Means of Assessment

Description of 'Other'
Means of Assessment

Details of Assessment
Measurement

Criterion for Success

Assessment Results /
Data Collected

Measurement Five and Up

For Outcomes with more than four measurements, select means of assessment for measures five and up from the list below (check all that apply). Then list the details for measurements 5 and up in the areas below. Please number them appropriately in each text area, starting with number 5.

Capstone course / senior design project **No**

Exam in non-culminating course(s) **No**

Rubric-scored artifact in non-culminating course(s) **No**

End of course evaluations **No**

Focus group/structured interviews (students, faculty) **No**

ERAU Student Satisfaction Survey **No**

ERAU Graduating Student Survey **No**

ERAU Alumni Survey **No**

ERAU Employer Feedback Survey **No**

Feedback Survey

National Survey of Student Engagement (NSSE) **No**

Incoming Freshmen Survey (CIRP) **No**

Other national survey **No**

External or internal peer review **No**

Retention / graduation rates **No**

Employment placement / continuing education rates **No**

Other (Please specify below) **No**

Description of 'Other' Means of Assessment

Details of Assessment Measurement

Criterion / Criteria for Success

Assessment Results / Data Collected

Improvements

Assessment Outcome Title

Outcome Title **PC_GENED_PO_04 Research**

Use of Assessment Results

Have assessment results been used to make improvements? **Yes (Select all that apply below, then describe)**

Pedagogical modifications were made **Yes**

Course sequence was altered **No**

Technology-related changes were made **No**

Personnel-related changes were made **No**

Other **No**

Description of Improvements **Based on the results from the post-instruction test in which students scored the lowest, Instruction Librarians will revise the library instruction program for COM122, placing more emphasis on evaluating websites and detecting bias on websites, as well as the concept of copyright protection and ethical use of intellectual property. They will continue to emphasize the importance of using appropriate sources for academic research.**

Attach File(s) (optional)

Attachments	Type
PC_GENED_PO_04 [2010-12] ASMEAS MEAS1 DET.pdf	Attachment
PC_GENED_PO_04 [2010-12] ASMEAS MEAS1 ASRES.xlsx	Attachment

Planned Future Improvements

Indicate and describe any planned improvements. If new funds are required for planned improvements, you will also need to complete the next tab, "Mission Critical Budget Request".

Do assessment results indicate any critical improvements that must be made in the next fiscal year?

Description of Planned Improvements

Mission-Critical Budget Request

Assessment Outcome Title

Outcome Title PC_GENED_PO_04 Research

Mission-Critical Budget Request

Title of Budget Request

Details of Budget Request

Are capital funds required?

Total Amount of Operating Funds Requested

Salaries: \$

Duration:

Benefits: \$

Duration:

Professional Development: \$

Duration:

Computer Hardware: \$

Duration:

Computer Software: \$

Duration:

Other Operating Funds: \$

Duration:

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[PC_GENED_PO_06 Science](#)

Select Outcome to Assess from Master List of Outcomes

Instructions: Below, click the "BROWSE" button to:

- (REQUIRED) Select an outcome to assess from Master List of Program Outcomes ("BROWSE" -> "Master List of Program Outcomes" -> "GO" button).
- (OPTIONAL) Align outcome with any other applicable standards such as AABI, ABET, General Education Outcomes: ("BROWSE" ->

"Standards" -> "GÖ" button).

* Select Outcome from Master List of Outcomes PC_GENED_PO_06 Science Identify some of the important results of scientific inquiry in the physical and natural sciences, and use scientific information in critical thinking and decision-making.

* Assessment Outcome Title PC_GENED_PO_06 Science

Assessment Measures, Criteria for Success and Results

Measurement One

Outcome Title PC_GENED_PO_06 Science

* Means of Assessment Other (please specify below)

Description of 'Other' Means of Assessment PS 150: Physics for Engineers I final exam scores from Fall 2009 and Fall 2010 for selected questions related to critical thinking and decision-making skills. Students enrolled in the freshmen level PS150 Physics course during the Fall 2010 semester are being introduced to software tied to the course textbook which prompts students to interactively work through homework problems using a Socratic method to stimulate critical thinking. The students enrolled in this course last academic year were not provided with this software. The improvement (if any) in critical thinking and decision-making skills as a result of this electronic interface will be assessed through the comparison of final exam scores for selected questions as given by the same instructor before and after the software was implemented as a part of course instruction. This assessment will, therefore, represent the comparison of PS 150 students in Fall 2009 and Fall 2010.

Details of Assessment Measurement (Timeframe of Data Collection, Participants/Roles, etc.) See attachment: [PC_GENED_PO_06 \[2010-12\] ASMEAS MEAS1 DET.pdf](#)

* Criterion for Success Average student scores will increase 5% or more from Fall 2009 (prior to the implementation of the interactive software) to Fall 2010 for the selected questions which address General Education Program Outcome 6.

Assessment Results / Data Collected The final grade distributions for Dr. Smith's PS150 course in the Fall 2009 and Fall 2010 semesters did not show much difference. A few observations: First, the number of students scoring below 50% has been significantly reduced, from 5 out of 40 down to 2 out of 52. Second, the average student grade for the course rose 1.4% between Fall 2009 and Fall 2010. However, this increase is too small to determine whether the improvement in the "class average" is significant or not. Third, in previous semesters (before Fall 2010), students have been able to copy homework from each other, and use publicly available solutions off the internet in order to do their homework. However, by using the Mastering Physics program, students are no longer able to take advantage of these objectionable forms of accomplishing their work. While many of the problems were the same between the two semesters, the numbers used in the calculations were different from student to student. So, the fact that the average class score did not decrease can be viewed as a positive sign.

Measurement Two

Means of Assessment Other (please specify below)

Description of 'Other' Means of Assessment PS 160: Physics for Engineers II final exam scores from Spring 2010 and Spring 2011 for selected questions related to critical thinking and decision-making skills. Students enrolled in the freshmen level PS160 Physics course during the Spring 2011 semester are being introduced to software tied to the course textbook which prompts students to interactively work through homework problems using a Socratic method to stimulate critical thinking. The students enrolled in this course last academic year were not provided with this software. The improvement (if any) in critical thinking and decision-making skills as a result of this electronic interface will be assessed through the comparison of final exam scores for selected questions as given by the same instructor before and after the software was implemented as a part of course instruction. This assessment will, therefore, represent the comparison of PS 160 students in Spring 2010 and Spring 2011.

Details of Assessment Measurement Time-frame for Data Collection: Data will be collected in Spring 2011. Participants and roles: Participants are students who enrolled in PS160: Physics for Engineers II in Spring 2011 and students who were enrolled in the course in Spring 2010. Dr. Darrel Smith (?) will administer the final exam in Spring 2011 and collect the data to be used for comparison to final exam results from the Spring 2010 semester. Other Details: The PS 160 course is a second semester course which

focuses on Special theory of relativity, rotational motion, simple harmonic motion, waves, fluids, thermodynamics and the like. This course is recommended to students who have taken and passed PS150: Physics for Engineers I and is a critical second step toward their obtaining an engineering degree. This assessment will provide valuable data in terms of the improvement in critical thinking and decision-making skills of students as they prepare for more rigorous courses they will be required to take in subsequent semesters. It should also be noted that the comparison of scores will be based on Spring semesters only and for questions generated by the same instructor to ensure consistency between both the student population (i.e., no Fall repeats) and the instruction given in the class.

Criterion for Success Average student scores will increase 5% or more from Spring 2010 (prior to the implementation of the interactive software) to Spring 2011 for the selected questions which address General Education Program Outcome 6.

Assessment Results /
Data Collected

Measurement Three

Means of Assessment

Description of 'Other'
Means of Assessment

Details of Assessment
Measurement

Criterion for Success

Assessment Results /
Data Collected

Measurement Four

Means of Assessment

Description of 'Other'
Means of Assessment

Details of Assessment
Measurement

Criterion for Success

Assessment Results /
Data Collected

Measurement Five and Up

For Outcomes with more than four measurements, select means of assessment for measures five and up from the list below (check all that apply). Then list the details for measurements 5 and up in the areas below. Please number them appropriately in each text area, starting with number 5.

Capstone course / senior No
design project

Exam in non-culminating No
course(s)

Rubric-scored artifact in No
non-culminating
course(s)

End of course evaluations No

Focus group/structured No
interviews (students,
faculty)

ERAU Student No
Satisfaction Survey

ERAU Graduating Student Survey **No**

ERAU Alumni Survey **No**

ERAU Employer Feedback Survey **No**

National Survey of Student Engagement (NSSE) **No**

Incoming Freshmen Survey (CIRP) **No**

Other national survey **No**

External or internal peer review **No**

Retention / graduation rates **No**

Employment placement / continuing education rates **No**

Other (Please specify below) **No**

Description of 'Other' Means of Assessment

Details of Assessment Measurement

Criterion / Criteria for Success

Assessment Results / Data Collected

Improvements

Assessment Outcome Title

Outcome Title **PC_GENED_PO_06 Science**

Use of Assessment Results

Have assessment results been used to make improvements? **Yes (Select all that apply below, then describe)**

Pedagogical modifications were made **No**

Course sequence was altered **No**

Technology-related changes were made **Yes**

Personnel-related changes were made **No**

Other **No**

Description of Improvements **See attachment: [PC_GENED_PO_06 \[2010-12\] IMP ASRES.pdf](#)**

Attach File(s) (optional)

Attach File(s) (Optional)

Attachments

Type

[PC_GENED_PO_06 \[2010-12\] ASMEAS MEAS1 DET.pdf](#)

Attachment

[PC_GENED_PO_06 \[2010-12\] IMP ASRES.pdf](#)

Attachment

Planned Future Improvements

Indicate and describe any planned improvements. If new funds are required for planned improvements, you will also need to complete the next tab, "Mission Critical Budget Request".

Do assessment results indicate any critical improvements that must be made in the next fiscal year?

Description of Planned Improvements

Mission-Critical Budget Request

Assessment Outcome Title

Outcome Title **PC_GENED_PO_06 Science**

Mission-Critical Budget Request

Title of Budget Request

Details of Budget Request

Are capital funds required?

Total Amount of Operating Funds Requested

Salaries: \$

Duration:

Benefits: \$

Duration:

Professional Development: \$

Duration:

Computer Hardware: \$

Duration:

Computer Software: \$

Duration:

Other Operating Funds: \$

Duration:

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[PC_GENED_PO_07 Tech](#)

Select Outcome to Assess from Master List of Outcomes

Instructions: Below, click the "BROWSE" button to:

1. (REQUIRED) Select an outcome to assess from Master List of Program Outcomes ("BROWSE" -> "Master List of Program Outcomes" -

> "GO" button).

2. (OPTIONAL) Align outcome with any other applicable standards such as AABI, ABET, General Education Outcomes: ("BROWSE" -> "Standards" -> "GO" button).

* Select Outcome from PC_GENED_PO_07 Tech Use technology to organize and manipulate information to communicate Master List of Outcomes ideas and concepts.

* Assessment Outcome PC_GENED_PO_07 Tech Title

Assessment Measures, Criteria for Success and Results

Measurement One

Outcome Title PC_GENED_PO_07 Tech

* Means of Assessment Exam in non-culminating course(s)

Description of 'Other' Means of Assessment

Details of Assessment Measurement (Timeframe of Data Collection, Participants/Roles, etc.) Time-frame for Data Collection: Data will be collected in Fall 2011, and Spring 2012 Participants and Roles: Students in IT 109 in each semester.

* Criterion for Success Students enrolled in IT 109 in Fall 2011 and Spring 2012 will quantitatively demonstrate gains in knowledge of key terms and concepts in computer literacy as measured by a pre- and post-test consisting of 40 multiple-choice questions. Specifically, students will score an average of at least 75% on the post-test AND will demonstrate a 5% gain from pre-test to post-test.

Assessment Results / Data Collected The IT 109 general education project to improve student learning, measured by the final exam, did not achieve the desired improvement percentages. From fall 2011 to spring 2012, for two sections of IT 109, there was an overall improvement for part 1 of approximately 2% for two sections, failing to reach the 5% objective. (One section showed improvement, from fall to spring, of a little over 5%, while the other section actually did slightly worse from fall to spring).

Measurement Two

Means of Assessment Exam in non-culminating course(s)

Description of 'Other' Means of Assessment

Details of Assessment Measurement Time-frame for Data Collection: Data will be collected in Fall 2011, and Spring 2012 Participants and Roles: Students in IT 109 in each semester.

Criterion for Success Students enrolled in IT 109 will show an improvement in knowledge of ERAU's informational systems as measured from Fall 2012 to Spring 2012 by 5 questions on the final exam for both classes. Specifically, students will demonstrate a 5% gain from Fall 2012 to Spring 2012 on the informational systems component of the final exam.

Assessment Results / Data Collected The IT 109 general education project to improve student learning, measured by the final exam, did not achieve the desired improvement percentages. The results fell short of the desired improvement, no matter how measured. From fall 2011 to spring 2012, for two sections of IT 109, there was only very slight overall improvement (of less than 1%) for part 2 (the ERAU IT questions), failing to reach the 5% improvement objective.

Measurement Three

Means of Assessment

Description of 'Other' Means of Assessment

Details of Assessment Measurement

Criterion for Success

Assessment Results /
Data Collected

Measurement Four

Means of Assessment

Description of 'Other'
Means of Assessment

Details of Assessment
Measurement

Criterion for Success

Assessment Results /
Data Collected

Measurement Five and Up

For Outcomes with more than four measurements, select means of assessment for measures five and up from the list below (check all that apply). Then list the details for measurements 5 and up in the areas below. Please number them appropriately in each text area, starting with number 5.

Capstone course / senior design project **No**

Exam in non-culminating course(s) **No**

Rubric-scored artifact in non-culminating course(s) **No**

End of course evaluations **No**

Focus group/structured interviews (students, faculty) **No**

ERAU Student Satisfaction Survey **No**

ERAU Graduating Student Survey **No**

ERAU Alumni Survey **No**

ERAU Employer Feedback Survey **No**

National Survey of Student Engagement (NSSE) **No**

Incoming Freshmen Survey (CIRP) **No**

Other national survey **No**

External or internal peer review **No**

Retention / graduation rates **No**

Employment placement / continuing education rates **No**

Other (Please specify below) **No**

Description of 'Other'
Means of Assessment

Details of Assessment
Measurement

Criterion / Criteria for
Success

Assessment Results /
Data Collected

Improvements

Assessment Outcome Title

Outcome Title PC_GENED_PO_07 Tech

Use of Assessment Results

Have assessment results **Yes** (Select all that apply below, then describe)
been used to make
improvements?

Pedagogical **Yes**
modifications were made

Course sequence was **No**
altered

Technology-related **No**
changes were made

Personnel-related **No**
changes were made

Other **No**

Description of
Improvements IT 109 (in particular, the ERAU IT unit) will be modified so as to improve student learning for
academic year fall 2012 - spring 2013.

Attach File(s) (optional)

Planned Future Improvements

Indicate and describe any planned improvements. If new funds are required for planned improvements, you will also need to complete the next tab, "Mission Critical Budget Request".

Do assessment results **No**
indicate any critical
improvements that must
be made in the next fiscal
year?

Description of Planned
Improvements

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[PC_GENED_PO_08 Economics](#)

Select Outcome to Assess from Master List of Outcomes

Instructions: Below, click the "BROWSE" button to:

1. (REQUIRED) Select an outcome to assess from Master List of Program Outcomes ("BROWSE" -> "Master List of Program Outcomes" -> "GO" button).
2. (OPTIONAL) Align outcome with any other applicable standards such as AABI, ABET, General Education Outcomes: ("BROWSE" -> "Standards" -> "GO" button).

* Select Outcome from Master List of Outcomes PC_GENED_PO_08 Economics Apply economic principles to identify, formulate, and solve problems.

* Assessment Outcome Title PC_GENED_PO_08 Economics

Assessment Measures, Criteria for Success and Results

Measurement One

Outcome Title PC_GENED_PO_08 Economics

* Means of Assessment Other (please specify below)

Description of 'Other' Means of Assessment Final exam scores for selected questions relating to problem-solving using economics concepts and tools for Fall 2010 and Spring 2011 for EC 210: Microeconomics will be determined using standard-based grading techniques. Note that this assessment is not a pre- and post-score comparison but is instead a standard-based assessment; in other words, by the end of the semester can students formulate economic problems and solve them using appropriately chosen economic tools so as to articulate complete and accurate solutions that are well justified?

Details of Assessment Measurement (Timeframe of Data Collection, Participants/Roles, etc.) Time-frame for Data Collection: Data will be collected in Fall 2010 and Spring 2011. Participants and roles: Participants are students enrolled in EC 210: Microeconomics. Dr. Ricardo Carreras will administer the final exam and collect the data to be used for this assessment. Other Details: EC 210 is an introductory course in microeconomics which focuses on the basic variety of economic concepts through the analysis and understanding of economic theory through the perspective of the average consumer, the average producer, and the average concerned citizen in a market-oriented economy. Concepts to be assessed in the final exam include the determination of supply and demand, market production equilibrium, price determination, labor market analysis, monopoly markets, perfect competition theory, international trade issues, and income distribution theory.

* Criterion for Success Final exam scores for the selected questions which address General Education Program Outcome 8 will be averaged; scores for the Fall 2010 and Spring 2010 semesters will be aggregated. Students will score an aggregate average of at least 75% for each of the selected questions.

Assessment Results / Data Collected For EC 210, 30 students took the final exam, 76.4% of the responses to questions 4, 6, and 9 were answered accurately; thus, this student sample successfully met the criteria for this competency.

Measurement Two

Means of Assessment Other (please specify below)

Description of 'Other' Means of Assessment Final exam scores for selected questions relating to problem-solving using economics concepts and tools for Fall 2010 and Spring 2010 for EC 211: Macroeconomics will be determined using standard-referenced grading techniques. Note that this assessment is not a pre- and post-score comparison but is instead a standard-based assessment; in other words, by the end of the semester can students formulate economic problems and solve them using appropriately chosen economic tools so as to articulate complete and accurate solutions that are well justified?

Details of Assessment Measurement Time-frame for Data Collection: Data will be collected in Fall 2010 and Spring 2011. Participants and roles: Participants are students enrolled in EC 211: Macroeconomics. Dr. Ricardo Carreras will administer the final exam and collect the data to be used for this assessment. Other Details: EC 211 is an introductory course in macroeconomics which focuses on the basic variety of economic concepts through the analysis of employment, inflation, recession, GDP economic growth, and international trade with an emphasis on practical policy alternatives. Concepts assessed in the final exam include the ideological framework of American capitalism, an understanding of the national banking system, application of fiscal and monetary policies, and the counter-cyclical growth of start-up airlines and ATC privatization.

Criterion for Success Final exam scores for the selected questions which address General Education Program Outcome 8 will be averaged; scores for the Fall 2010 and Spring 2010 semesters will be aggregated. Students will score an aggregate average of at least 75% for each of the selected questions.

Assessment Results / Data Collected For EC 211, 26 students took the final exam. 78.8% of the responses to questions 2, 5, and 8 were answered accurately; thus, this student sample successfully met the criteria for this competency.

Measurement Three

Means of Assessment	Other (please specify below)
Description of 'Other' Means of Assessment	Final exam scores for selected questions relating to problem-solving using economics concepts and tools for Fall 2010 and Spring 2010 for EC 315 Managerial Economics will be determined using standard-referenced grading techniques. Note that this assessment is not a pre- and post-score comparison but is instead a standard-based assessment; in other words, by the end of the semester can students formulate economic problems and solve them using appropriately chosen economic tools so as to articulate complete and accurate solutions that are well justified?
Details of Assessment Measurement	Time-frame for Data Collection: Data will be collected in Fall 2010 and Spring 2011. Participants and roles: Participants are students enrolled in EC 315: Managerial Economics. Dr. Ricardo Carreras will administer the final exam and collect the data to be used for this assessment. Other Details: EC 315 is a practice-based course in economics which focuses on an analytical approach to the manager's role in understanding pricing, costing, production and forecasting. Concepts assessed in the final exam include the quantitative and qualitative applications of economic principles to business analysis, including forecasting passenger demand, airline production and cost analysis, optimal pricing and production decisions, sensitivity analysis, and capital budgeting.
Criterion for Success	Final exam scores for the selected questions which address General Education Program Outcome 8 will be averaged; scores for the Fall 2010 and Spring 2010 semesters will be aggregated. Students will score an aggregate average of at least 75% for each of the selected questions.
Assessment Results / Data Collected	For EC 315, 28 students took the final exam. 72.9% of the responses to questions 3, 10, and 11 were answered accurately; thus, this student sample did not successfully meet the criteria for this competency. This criterion will be re-examined in a forthcoming assessment cycle to determine whether student competency of these criteria have improved in response to curricular revisions to course materials, assignments, and exams.

Measurement Four

Means of Assessment	Exam in non-culminating course(s)
Description of 'Other' Means of Assessment	Students enrolled in EC 210: Microeconomics in Fall 2011 and Spring 2012 will demonstrate the ability to problem-solve using economics concepts and tools. A norm-based assessment (final exam) will be used to determine whether students can formulate economics problems and solve them using appropriately chosen economics tools to articulate complete and accurate solutions that are well justified.
Details of Assessment Measurement	Time-frame for Data Collection: Data will be collected in Fall 2011 and Spring 2012. Participants and roles: Participants are students enrolled in EC 210: Microeconomics. Dr. Ricardo Carreras will administer the final exam and collect the data to be used for this assessment.
Criterion for Success	Students enrolled in EC 210: Microeconomics in Fall 2011 and Spring 2012 will demonstrate the ability to problem-solve using economics concepts and tools. A norm-based assessment (final exam) will be used to determine whether students can formulate economics problems and solve them using appropriately chosen economics tools to articulate complete and accurate solutions that are well justified. Specifically, students in all sections in all semesters will average a mean score of 75% on selected problems from the EC 210 final exam.
Assessment Results / Data Collected	The mean score for all sections for all semesters on the EC 210 final exam was 76%. This criterion was successfully met.

Measurement Five and Up

For Outcomes with more than four measurements, select means of assessment for measures five and up from the list below (check all that apply). Then list the details for measurements 5 and up in the areas below. Please number them appropriately in each text area, starting with number 5.

Capstone course / senior design project **No**

Exam in non-culminating course(s) **Yes**

Rubric-scored artifact in non-culminating course(s) **No**

End of course evaluations No

Focus group/structured interviews (students, faculty) No

ERAU Student Satisfaction Survey No

ERAU Graduating Student Survey No

ERAU Alumni Survey No

ERAU Employer Feedback Survey No

National Survey of Student Engagement (NSSE) No

Incoming Freshmen Survey (CIRP) No

Other national survey No

External or internal peer review No

Retention / graduation rates No

Employment placement / continuing education rates No

Other (Please specify below) No

Description of 'Other' Means of Assessment 5) Students enrolled in EC 211: Macroeconomics in Fall 2011 and Spring 2012 will demonstrate the ability to problem-solve using economics concepts and tools. A norm-based assessment (final exam) will be used to determine whether students can formulate economics problems and solve them using appropriately chosen economics tools to articulate complete and accurate solutions that are well justified. 6) Students enrolled in EC 315: Managerial economics in Fall 2011 and Spring 2012 will demonstrate the ability to problem-solve using economics concepts and tools. A norm-based assessment (final exam) will be used to determine whether students can formulate economics problems and solve them using appropriately chosen economics tools to articulate complete and accurate solutions that are well justified.

Details of Assessment Measurement 5) Time-frame for Data Collection: Data will be collected in Fall 2011 and Spring 2012. Participants and roles: Participants are students enrolled in EC 211: Macroeconomics. Dr. Ricardo Carreras will administer the final exam and collect the data to be used for this assessment. 6) Time-frame for Data Collection: Data will be collected in Fall 2011 and Spring 2012. Participants and roles: Participants are students enrolled in EC 315: Managerial economics. Dr. Ricardo Carreras will administer the final exam and collect the data to be used for this assessment.

Criterion / Criteria for Success 5) Students enrolled in EC 211: Macroeconomics in Fall 2011 and Spring 2012 will demonstrate the ability to problem-solve using economics concepts and tools. A norm-based assessment (final exam) will be used to determine whether students can formulate economics problems and solve them using appropriately chosen economics tools to articulate complete and accurate solutions that are well justified. Specifically, students in all sections in all semesters will average a mean score of 75% on selected problems from the EC 211 final exam. 6) Students enrolled in EC 315: Managerial economics in Fall 2011 and Spring 2012 will demonstrate the ability to problem-solve using economics concepts and tools. A norm-based assessment (final exam) will be used to determine whether students can formulate economics problems and solve them using appropriately chosen economics tools to articulate complete and accurate solutions that are well justified. Specifically, students in all sections in all semesters will average a mean score of 75% on selected problems from the EC 315 final exam.

Assessment Results / Data Collected 5) The mean score for all sections for all semesters on the EC 210 final exam was 82%. This

Data Collected

criterion was successfully met. 6) The mean score for all sections for all semesters on the EC 315 final exam was 73%. This criterion was not met successfully.

Improvements

Assessment Outcome Title

Outcome Title PC_GENED_PO_08 Economics

Use of Assessment Results

Have assessment results been used to make improvements? **Yes (Select all that apply below, then describe)**

Pedagogical modifications were made **Yes**

Course sequence was altered **No**

Technology-related changes were made **No**

Personnel-related changes were made **No**

Other **No**

Description of Improvements

After the 2010-2011 academic year: Results have been used to make improvements to the critical thinking and cultural literacy components of EC 315: Managerial Economics. Specifically, pedagogical modifications were implemented. These assessment results do not indicate the need for any mission critical funding. After the 2011-2012 academic year: Problem-based homework assignments will be revised to allow students more opportunities to practice problem-solving using appropriate tools. Furthermore, the course instructor will work with the Center for Teaching and Learning Excellence (CTLE) to determine how the final exam in EC 315 can better capture student skill at problem solving.

Attach File(s) (optional)

Planned Future Improvements

Indicate and describe any planned improvements. If new funds are required for planned improvements, you will also need to complete the next tab, "Mission Critical Budget Request".

Do assessment results indicate any critical improvements that must be made in the next fiscal year? **No**

Description of Planned Improvements

Mission-Critical Budget Request

Assessment Outcome Title

Outcome Title PC_GENED_PO_08 Economics

Mission-Critical Budget Request

Title of Budget Request

Details of Budget Request

Are capital funds required?

Total Amount of Operating Funds Requested

Salaries: \$

Duration:

Benefits: \$

Duration:

Professional
Development: \$

Duration:

Computer Hardware: \$

Duration:

Computer Software: \$

Duration:

Other Operating Funds: \$

Duration:

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