

College of Natural and Applied Sciences
CNAS Assessment Committee AY 2006-2007 Summary Report

1. Introduction. The primary goal of this report is to summarize the activities that the college-wide CNAS Assessment Committee accomplished for the AY 2006-2007. Most importantly, we present the AY 2007-2008 Assessment Plans for each academic program at CNAS. In Section 2, we present the WASC recommendations that WASC made after their January 31-February 2, 2007 Capacity and Preparatory Review Visit. In Section 3, we present the assessment updated reports and the AY 2007-2008 Assessment Plans submitted by the subcommittees of the CNAS Assessment Committee (See Section 3 defining these subcommittees). For the record, the members of the CNAS Assessment Committee are:

Dr. Henry J. Taijeron, Chair
Dr. Alicia Aguon, Mathematics
Dr. Grazyna Badowski, Mathematics
Prof. Han Tower Chen, Mathematics
Dr. Anatole Grishin, Mathematics
Dr. Frank Lee, CS/CIS
Dr. Chris Lobban, Biology
Dr. Maria Schefter, UOG NIH-RISE Program Evaluator
Dr. Prem Singh, Agriculture
Dr. Carl Swanson, CS/CIS
Dr. Maika Vuki, Chemistry

2. Recommendations by CNAS Assessment Committee. In this Section, we present the recommendations that were addressed in the *Report of the WASC Visiting Team Capacity and Preparatory Review*. These recommendations were presented at the CNAS Assessment Committee meeting on May 11, 2007.

2.1. WASC's Recommendations on Assessable Student Learning Outcomes (SLOs). In the WASC report, the following recommendations were made regarding SLOs:

- Programs should complete the process of developing statements of assessable SLOs, linking these to specific courses, assessing student achievement of these outcomes as graduating seniors, and using assessment results for continuous program improvement.
- Syllabi should include relevant program SLOs as well as course SLOs.
- Programs should develop core course objectives or master syllabi for multiple section courses and courses in sequence, in particular remedial courses and courses transitioning students from remedial courses to college courses.

In order for CNAS to follow through on these recommendations, the Chair informed the Committee members that Dean Yudin would be expecting faculty to revise all syllabi to comply with these recommendations as part of each individual faculty's CFES Agreement Plan. "In response, and mindful of the work for faculty to write and for this committee to review full syllabi", the following motion was proposed and carried:

That the faculty be directed to write/revise student learning outcomes for each course, assessment of these outcomes, and links of these outcomes to program or GE goals, and not necessarily to revise the entire syllabus. M/S/C Schefter/Lee.

It is very crucial that CNAS addresses the above-mentioned WASC recommendations. CNAS must make it mandatory for all faculty to include assessable SLOs in all of their syllabi. This can be initially done by making sure that the motion carried by the Committee on this issue is made a part of each of CNAS faculty's CFES Agreement Plan for the coming AY 2007-2008. By the end of the AY 2007-2008, CNAS must require all faculty to submit course syllabi that they are teaching that include statements of assessable SLOs that link to program learning objectives. It is also very crucial that all CNAS program faculty address the WASC's concern regarding multiple sections. All Unit Representatives must make sure that the SLOs incorporated in these multiple section courses are carried out by all faculty teaching these courses including adjunct professors.

2.2. WASC's Recommendation on the "centralizing management of remediation in essential skills". WASC noted that "Remediation in mathematics and English is a major responsibility of the programs in Mathematics and English and Applied Linguistics." As a consequence, the Committee recommends that this recommendation be first forwarded to the mathematics faculty for their input and recommendation.

2.3. WASC's Recommendation on a "full-time academic assessment coordinator and an institutional researcher with professional qualifications and substantial experience in these fields". WASC recommended that "*Academic programs urgently require the full-time and committed services of an academic assessment coordinator and an institutional researcher with professional qualifications and substantial experience in these fields. These would report to the Senior Vice President, Academic and Student Affairs, and should be filled as finances allow.*" On this issue, the Committee revisited its previous call for assistance and revised and reiterated its recommendation:

The CNAS Assessment Committee recommends that, to effectively implement WASC recommendations for program-level assessment, the College must provide (1) faculty training in assessment and tracking the data, including face-to-face meetings and ongoing, long-term assistance from mathematics and from science consultants, particularly with program-level assessment experience; and (2) resources to support the implementation of assessment activities including data acquisition and management.
M/S/C Singh/Schefter

CNAS must seriously address this motion. Although UOG is currently addressing these issues at the university level, we need to apply these efforts at the college level (program level). We need to hire at least on a consultant basis someone with mathematics and/or science background with program-level assessment experience to assist each of our degree program faculty with our assessment plans.

3. Program Level Assessment Update Reports and Program Level Assessment Plans for the AY 2007-2008. Our Assessment Committee formed the following subcommittees assigned to submit their respective program-level assessment update reports and their respective assessment plans for the AY 2007-2008:

AG/CFS:	Agriculture & Consumer and Family Sciences Degree Programs (Member: Dr. Prem Singh)
Biology:	Biology Degree Program (Members: Dr. Chris Lobban and Dr. Maria Schefter)
Chemistry:	Chemistry Degree Program (Member: Dr. Maika Vuki)
CS/CIS:	Computer Science & Computer Information Systems Degree Programs (Members: Dr. Frank Lee and Dr. Carl Swanson)
Math:	Mathematics Degree Program (Members: Dr. Alicia Aguon, Dr. Anatole Grishin and Dr. Grazyna Badowski)

Recall that WASC expects us by their Educational Effectiveness Review Visit during the AY 2008-2009 that “Every academic program – both undergraduate and graduate – and every category of General Education (GE) will have assessed at least ONE learning objective with ONE direct measure of assessment and will have begun to discuss findings with a view toward program improvement.” As a consequence, our CNAS Assessment Committee dedicated all of its time last AY working on WASC’s expectation on assessment. With the assistance of this Committee, each of the degree program faculty including the graduate degree programs in Biology and Environmental Science presented its tentative assessment plans at the poster session during *WASC’s Capacity and Preparatory Review Visit*. In this Section, we present a summary of the submitted reports of the above-mentioned Subcommittees.

3.1. AG/CFS Assessment Update Report and AY 2007-2008 Assessment Plans. In this Section, we present the updated report and the tentative AY 2007-2008 Assessment Plans for Agriculture (AG) and Consumer and Family Sciences (CFS). For CFS, We will present the assessment plans that CFS submitted for the WASC Poster Session that was held on January 31 – February 2.

3.1.1. AG Updated Report and AY 2007-2008 Assessment Plans. In this Section, we present the AG Subcommittee’s submitted report.

1. Program Learning Objectives:
 - a. Learning Objective Selected:

Students will recognize and demonstrate skills and behaviors, which contribute to work success and enhance employability.

- b. Direct Measure of Assessment Selected for Assessment (Tool Used):
Student performance in courses of AG498 (Internship), AG495 (Thesis) and AG491 (Seminar). AG498 is required for Applied Emphasis tract while AG495 (Thesis) is required for Research Emphasis tract, and AG491 (Seminar) is required for all students in the program.
 - c. Faculty Responsible for Assessment:
Instructors and supervisors for AG498 (Internship), Chair and committee members for AG495 (Thesis), and instructors for AG491 (Seminar).
 - d. Updated Report on Assessment (Details are given in the AG/CFS Subcommittee's submitted report and report can be reviewed upon request).
 - e. AY 2007-2008 Assessment Plans:
AG must begin its program-level assessment plan using a direct measure of assessment by fall 2007. AG must have evidences of SLO's at the program-level collected by spring 2008. By the end of fall 2008, AG must complete its recommendations for program improvement using these findings.
2. General Education (GE) – Science Category Learning Objectives:
- a. Learning Objective Selected:
Observe, describe, and interpret natural and experimental phenomena within the context of a scientific paradigm.
 - b. Direct Measure of Assessment (Tool Used) Selected for Assessment:
 - i. Portfolio--Students will compile a portfolio of their course activities and submit a weekly report as evidences. Each individual evidences will be graded according to the scale (0-3), 0-no evidence, 1-weak evidence, 2-adequate evidence and 3-strong evidence. The overall portfolio will be graded with scoring rubrics.
 - ii. Pre-test and Post-test--Students will take a comprehensive test covering course contents at the beginning and at the end of a semester. Pre-test and post-test results will evaluate the gain in student's knowledge of the learning objectives.
 - c. Faculty Responsible for Assessment:
Instructors of AG101 and AG102.
 - d. Updated Report on Assessment (No on-going GE assessment reported).
 - e. AY 2007-2008 Assessment Plans

AG must begin its GE assessment plan using a direct measure of assessment by fall 2007. AG must have evidences of SLO's for GE collected by spring 2008. By the end of fall 2008, AG must complete its recommendations for improvement regarding GE using these findings.

3.1.2. CFS Updated Report and AY 2007-2008 Assessment Plans. In this Section, we present the AG Subcommittee's submitted report. We also present the assessment plans that CFS submitted for the WASC Poster Session that was held on January 31 – February 2.

1. Program Learning Objectives:

a. Learning Objective Selected:

Goal: Acquire a knowledge base food, nutrition, and health.

Objective: Demonstrate criterion level knowledge of the influence of nutrition and health practices across the life span.

b. Direct Measure of Assessment Selected for Assessment (Tool Used):

To directly assess whether students have a basic understanding of fundamental nutrition concepts presented and discussed in the various nutrition classes that are part of the Consumer and Family Science Degree Program, a set of common questions that measure the program outcomes will be developed and administered when students take CF491 issues in CFS, which is the cap-stone course for all CFS majors. Instructors within the CFS Degree program will be able to determine overall if the students demonstrate competence within the area of nutrition and will also be able to identify areas in which students are weak. Examples of common questions to be developed are:

- Given an analysis of a diet record evaluate the adequacy of the diet when compared to DRIs and Dietary Guidelines for Americans
- Explain the primary functions and list the major food sources for: carbohydrates, proteins, fats, water, water-soluble vitamins, fat-soluble vitamins, macro-minerals, and trace minerals.

c. Faculty Responsible for Assessment:

Dr. Rachael Leon Guerrero.

d. Updated Report on Assessment (No report was submitted regarding on-going Program assessment for CFS).

e. AY 2007-2008 Assessment Plans:

CFS must begin its program-level assessment plan using a direct measure of assessment by fall 2007. CFS must have evidences of SLO's at the program-level collected by spring 2008. By the end of fall 2008, CFS must complete its recommendations for program improvement using these findings.

2. General Education (GE) – Science Category Learning Objectives:

- a. Learning Objective Selected:
Objective 1 states “to enable students to obtain the knowledge and skills necessary to solve problems in dietetics, food preparation and safety, chronic disease prevention and management, and metabolism”.
- b. Direct Measure of Assessment (Tool Used) Selected for Assessment:
A set of common questions that measure program outcomes will be developed and administered as pre-test and post-test. Data gleaned from CF231 assessments will be analyzed by Dr. Rachael Leon Guerrero.
- c. Faculty Responsible for Assessment:
Dr. Rachael Leon Guerrero.
- d. Updated Report on Assessment (No report was submitted regarding on-going Program assessment for CFS).
- e. AY 2007-2008 Assessment Plans
CFS must begin its GE assessment plan using a direct measure of assessment by fall 2007. CFS must have evidences of SLO’s for GE collected by spring 2008. By the end of fall 2008, CFS must complete its recommendations for improvement regarding GE using these findings.

3.2. **Biology Assessment Update Report and AY 2007–2008 Assessment Plans** In this Section, the Biology Curriculum Assessment Program (Bio CAP) Committee presents the updated report and AY 2007–2008 Assessment Plans for our Biology Program.

1. Program Learning Objectives:

(The short form of the Biology Degree Program Goals mentioned are in parenthesis with their #.)

- a. Learning Objective Selected: (#4 Communication skills)
Communication skills: Graduates use scientific literature and diagrams as a source of information, properly cite sources and avoid plagiarism, and create text and graphics to communicate results effectively through print and oral presentations. They collect and assess evidence and use it to create effective arguments in writing scientific reports and proposals.
NOTE—We are considering Biology goal #2 Quantitative skills as a candidate from which to formulate our next learning objective to assess. (#2 Quantitative skills) *Graduates apply numerical methods in research design, and use computers for analysis manipulating and modeling biological data.*

- b. Direct Measures of Assessment Selected (Tools Used):
- Dr. John Mitchell O'Toole's test of reading communication skills focusing on structural cues in the specialist style of science (administered Oct. 2006)
 - Previously administered journal article reading skills test—Dr. Chris Lobban and Dr. Maria Schefter
 - Scores from practice GRE essays—Dr. Maria Schefter
 - Assessment of journal article critiques in the Evolution course, using a scoring rubric—Dr. Kathy Lofdahl
 - Communication questions in BI 157 pre-/post-test—Dr. Lynn Raulerson
 - Critical thinking measures such as Critical Thinking Profile for College Students, Explicating the Logic of a Discipline, and an on-line measure being developed and piloted – all from The Foundation for Critical Thinking (CriticalThinking.org) are being discussed and adapted—Dr. Schefter et al.
- c. Faculty Responsible for Assessment:
Dr. Chris Lobban and Dr. Maria Schefter will assist those listed above and coordinate the efforts of the Biology Program.
- d. Updated Report on Assessment:
Biology began direct measures of assessment Oct. 2006. Initial results are being analyzed by Dr. O'Toole (Details are given in the Biology Subcommittee's submitted report which can be reviewed upon request). To study another aspect of communication skills, we are discussing how to utilize new learning from the July 2007 Critical Thinking (CT) conference (e.g., implementing a common framework of elements and standards for reasoning to foster CT traits and abilities).
- e. AY 2007–2008 Assessment Plans:
Biology will revisit the alignment of courses, e.g., Micro Biology with Biology degree Program Goals—Dr. Ernie Matson. Biology will continue its program-level assessment plan using direct measures of assessment. Biology already has evidence of student learning outcomes (SLOs) at the program-level collected by spring 2008 (began before Nov. 2006). Using these findings, by the end of fall 2008, we will complete our recommendations for improvement of our Biology Program.
2. General Education in Biological Sciences (GE)—Learning Objectives:
- a. Learning Objective Selected:
Students will develop and employ skills of logical and critical thinking to collect and analyze data, interpret results, and write reports.
- b. Direct Measures of Assessment Selected (Tools Used):

- Dr. Mitch O'Toole's test of reading communication skills focusing on structural cues in the specialist style of science (administered Oct. 2006) underpinning the ability to collect and critically analyze data
- Critical Thinking Profile for College Students—being piloted in one section—Dr. María Schefter
- Assessment of lab reports using a modified GRE scoring rubric or a modification of the Written Report Rubric from Dr. Julia C. Wan and Dr. Robert A. Koch, Cal State Fullerton under the auspices of the Cal State Fullerton MARC U*STAR Program funded by NIH NIGMS —under discussion

c. Faculty Responsible for Assessment:

Dr. Chris Lobban, Dr. Katherine Lofdahl, Dr. Jennifer Floyd, and Dr. Maria Schefter

d. Updated Report on Assessment

Biology began direct measures of assessment in Oct. 2006. Initial results are being analyzed by Dr. O'Toole. (Details are given in the Biology Subcommittee's submitted report and report can be reviewed upon request.)

e. AY 2007–2008 Assessment Plans

Biology will continue its GE assessment plans—discussing results from one direct measure of assessment to make improvement plans. Biology already has evidence of one GE student learning outcome (SLO) collected in Oct. 2006. Using these findings, by the end of fall 2008, we will complete our recommendations for improvement regarding Biology GE.

3. Biological Sciences to Support other Undergraduate Programs—Learning Objectives:

(NOTE: Outcomes have not yet been articulated by the clients, primarily the Nursing Program. A meeting with the Nursing faculty to discuss outcomes for pre-nursing students in BI 124/125 Anatomy and Physiology (A & P) courses and BI 225 Microbiology is rescheduled for September 2007.)

(NOTE: BI 225 Microbiology is not a service course, as generally perceived. This course uses texts and syllabi that are recommended and approved by the American Society for Microbiology as appropriate for all majors in biological sciences. Student learning outcomes (SLOs) are therefore primarily aligned with the Biology Program, but BI 225 is mentioned here because this course is also required by the Nursing Program.)

a. Learning Objective Tentatively Selected:

To communicate knowledge gained through observations, to identify, describe, and compare and contrast the structure and function of the body's organ systems—within the context of

current medical and physiological paradigm and from the level of cellular biology to interactions among various body systems.

- b. Direct Measures of Assessment Selected (Tool Used):
 - Dr. Mitch O'Toole's test of reading communication skills focusing on structural cues in the specialist style of science (administered Oct. 2006) underpinning the ability to collect and critically analyze data.
 - Dr. Miriam Piana completed (and submitted via her CFES documentation) some initial assessment work with the BI 124/125 classes.
 - Another assessment tool is being piloted in fall 2007 and will be revised in spring 2008.
- c. Faculty Responsible for Assessment:
Dr. Kate Moots and Dr. Ernie Matson, assisted by Dr. Frank Camacho and Dr. Gemma Conlu
- d. Updated Report on Assessment
During fall 2007, assessment tools and assessment of the support program as a whole will begin to align with the expectations for the students entering the Nursing Program from the Biology support courses.
- e. AY 2007–2008 Assessment Plans
Biology began its assessment of its Support Program in Oct. 2006. Biology will have more evidence of student learning outcomes (SLOs) for this support program by spring 2008. Based on these findings, by the end of fall 2008, we will complete our recommendations for improvement of this support program.

3.3. Chemistry Assessment Update Report and AY 2007-2008 Assessment Plans. In this Section, we present the updated report and AY 2007-2008 Assessment Plans for Chemistry. We summarize the Chemistry Subcommittee's submitted report.

1. Program Learning Objectives:

- a. Learning Objective Selected:
To demonstrate critical thinking, problem solving skills, and ability to use chemical knowledge and mathematical skills to identify, evaluate, analyze, synthesize, and integrate data and abstract ideas in solving problems.
- b. Direct Measure of Assessment Selected for Assessment (Tool Used):
Chemistry Unit faculty is to design a set of questions (say 10 questions) that will assess the categories. Dr Suleman will focus on organic chemistry questions and

Drs. Bala and Vuki will focus on general chemistry and upper division (Physical/Analytical/Seminar) courses.

- c. Faculty Responsible for Assessment:
Dr. Balakrishnan, Dr. Suleman, Dr. Vuki.
 - d. Updated Report on Assessment:
Plans to administer the assessment during the spring break (Details are given in the Chemistry Subcommittee's submitted report and report can be reviewed upon request).
 - e. AY 2007-2008 Assessment Plans:
Chemistry must continue its program-level assessment plan using a direct measure of assessment. Chemistry must have evidences of SLO's at the program-level collected by spring 2008. By the end of fall 2008, Chemistry must complete its recommendations for program improvement using these findings.
2. General Education (GE) – Science Category Learning Objectives:
- a. GE Learning Objective Selected:
To apply basic scientific principles and methods to solve real world problems and make appropriate use of science in their choices as citizens.
 - b. Direct Measure of Assessment (Tool Used) Selected for Assessment:
Similar to program "Direct Measure of Assessment Selected for Assessment (Tool Used)" defined above.
 - c. Faculty Responsible for Assessment:
Dr. Balakrishnan, Dr. Suleman, Dr. Vuki
 - d. Updated Report on Assessment (Details are given in the Chemistry Subcommittee's submitted report and report can be reviewed upon request).
 - e. AY 2007-2008 Assessment Plans
Chemistry must continue its GE assessment plan using a direct measure of assessment. Chemistry must have evidences of SLO's for GE collected by spring 2008. By the end of fall 2008, Chemistry must complete its recommendations for improvement regarding GE using these findings.
3. Chemistry Support Program in Nursing Learning Objectives:
Chemistry must begin its assessment on its Support Program in Nursing by fall 2007. Chemistry must have evidences of SLO's on this support program collected by spring 2008. By the end of fall 2008, Chemistry must complete its recommendations for improvement in this support program using these findings.

3.4. CS/CIS Assessment Update Report and AY 2007-2008 Assessment Plans. . In this Section, we present the updated report and AY 2007-2008 Assessment Plans for Computer Science and Computer Information Systems. We summarize the CS/CIS Subcommittee's submitted report. See the attached report from this Subcommittee for details.

1. Program Learning Objectives:

a. Learning Objective Selected:

From WASC Poster Session for CS/CIS:

Demonstrate ability to use modern software, abstract thinking, and mathematical practices connected to scientific and industrial problems, and demonstrate these skills that are currently used by technologies in society and education.

b. Direct Measure of Assessment Selected for Assessment (Tool Used):

Administer a midterm and final exams in lab sessions for the required CS315 to CS/CIS majors. Assign group projects (1-3 students per group) to design a simple database and implement their database in the Access System.

c. Faculty Responsible for Assessment:

Dr. Frank Lee, Dr. Carl Swanson, Dr. Joseph Zou

d. Updated Report on Assessment:

Administered the exams and projects discussed in 1b spring 2007. Results will be reported this summer (Details are given in the CS/CIS Subcommittee's submitted report and report can be reviewed upon request).

e. AY 2007-2008 Assessment Plans:

CS/CIS must continue its program-level assessment plan using a direct measure of assessment. CS/CIS must have evidences of SLO's at the program-level collected by spring 2008. By the end of fall 2008, CS/CIS must complete its recommendations for program improvement using these findings.

2. General Education (GE) – Essential Skills Category:

a. Learning Objective Selected:

From WASC Poster Session for CS/CIS (Two learning objectives were displayed. Either may be used for GE):

- i. *Developmental CS/CIS Learning Objective selected for Assessment:
Demonstrate proficiency with Microsoft Office Excel, essential to success in creating worksheets with embedded formulas, functions, formatting, what-if analysis.*

- ii. *General Education Learning Objective (Essential Skill – Computer Science & Computer Information systems) selected for Assessment: The enhancement of basic skills and conceptual understanding in mathematical preliminaries (this is a General Education item). The application of these skills to application software development (e.g. spreadsheet). The further application of these skills to the system software development (e.g. system design).*
- b. Direct Measure of Assessment (Tool Used) Selected for Assessment:
 - i. The direct measure is an exit assessment that a student takes before student exits CS200. (The test does not affect the student's final semester grade.). Dr. C. Swanson is responsible for designing the measure.
 - ii. A short test on topics covered in the Module may include logic, Boolean algebra, set theory, relations, functions, trees, graphs. An analysis of the results of the assessment is scheduled for CS/CIS faculty meetings later in Spring 2007.
- c. Faculty Responsible for Assessment:
Dr. Frank Lee, Dr. Carl Swanson, Dr. Joseph Zou
- d. Updated Report on Assessment
No assessment was done for CS200 (GE learning objective)
- e. AY 2007-2008 Assessment Plans
CS/CIS must begin its GE assessment plan using a direct measure of assessment by fall 2007. CS/CIS must have evidences of SLO's for GE collected by spring 2008. By the end of fall 2008, CS/CIS must complete its recommendations for improvement regarding GE using these findings.

3.5. Math Assessment Update Report and AY 2007-2008 Assessment Plans

- 1. Program Learning Objectives:
 - a. Learning Objective Selected:
Demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, and classifying, analyzing, synthesizing, data and abstract ideas in various contexts and situations.
 - b. Direct Measure of Assessment Selected for Assessment (Tool Used):
MA411 (Abstract Algebra)/MA422 (Intro. To Analysis II) as capstone courses (These courses are required and taken by seniors).
 - c. Faculty Responsible for Assessment:

Dr. A. Trance, Dr. Z. Szekely, Dr. H. Nagahashi; M. De Beer (Facilitator)

- d. Updated Report on Assessment:
(Details are given in the Math Subcommittee's submitted report and report can be reviewed upon request).
 - e. AY 2007-2008 Assessment Plans:
Math must continue its program-level assessment plan using a direct measure of assessment. Math must have evidences of SLO's at the program-level collected by spring 2008. By the end of fall 2008, Math must complete its recommendations for program improvement using these findings.
2. General Education (GE) – Essential Skills Category:
- a. Learning Objective Selected:
MA110 Assessment for GE:
 - *The enhancement of basic skills and conceptual understanding in elementary algebra (this is a General Education item).*
 - *The application of these skills to the mathematics of personal finance.*
 - *The further application of these skills to the mathematics of the business world (linear programming). See report submitted by the Math Subcommittee (Dr. Grishin) for details.*
 - b. Direct Measure of Assessment (Tool Used) Selected for Assessment:
A short test on topics covered in the Module that includes exponential function and its inverse, the logarithm, as well as other concepts covered in the selected course, MA110, is available that will be used, for now, as the sole method of assessment. An analysis of the results of the assessment is scheduled for Math faculty meetings in spring 2007. Data gleaned from individual MA110 assessments will be analyzed by designated faculty members. *See report submitted by the Math Subcommittee (Dr. Grishin) for details.*
 - c. Faculty Responsible for Assessment:
Mathematics Faculty chaired by Dr. Anatole Grishin.
 - d. Updated Report on Assessment
(Details are given in the Math Subcommittee's submitted report and report can be reviewed upon request).
 - e. AY 2007-2008 Assessment Plans
Math must continue its GE assessment plan using a direct measure of assessment. Math must have evidences of SLO's for GE collected by spring 2008. By the end

of fall 2008, Math must complete its recommendations for improvement regarding GE using these findings.

3. Developmental Mathematics Program Assessment:

a. Learning Objective Selected:

*MA085 for the Developmental Mathematics Program Assessment: Become proficient with basic algebra and some geometry (The main learning objective of Developmental Math Course (MA*085), is to provide the opportunity for students to review and strengthen their basic algebra skills, which are essential to success in intermediate algebra and University-level Math courses.*

b. Direct Measure of Assessment (Tool Used) Selected for Assessment:

The direct measure is an exit assessment that a student takes before student exits MA-085. (The test does not affect the student's final semester grade.)

c. Faculty Responsible for Assessment:

Prof. M. DeBeer

d. Updated Report on Assessment:

(Details are given in the Math Subcommittee's submitted report and report can be reviewed upon request).

e. AY 2007-2008 Assessment Plans

Math must continue its assessment plan using a direct measure of assessment in the Developmental Math Program. Math must have evidences of SLO's on this program collected by spring 2008. By the end of fall 2008, Math must complete its recommendations for program improvement in developmental math using these findings.

4. Additional Mathematics Assessment:

MA161a/MA165 Selected for Assessment:

Dr. Alicia Aguon and Dr. Grazyna Badowski are using the proposal developed by Dr. Uri Treisman at UC Berkeley, which is based on the "Workshop" concept and is run by many universities. The workshop concept provides a lecture/lab problem solving session conducted by a math TA and supervised by Drs. Aguon and Badowski. Assessment is done to determine if there is any impact on grades and retention for these students in these classes (Will learning mathematics improve with this teaching method proposed by Dr. Treisman as compared to the standard lecture classes conducted by most mathematics instructors?). Students are also asked to find out their attitudes towards this different teaching method as compared to the standard lecture classes.

3.6. Graduate Biology and Graduate Environmental Science (Grad EV) Assessment Plans.
In this Section, we present the plans for Graduate Biology and Graduate Environment Science that were submitted for the WASC poster session in January 31 – February 2, 2007.

3.6.1. Graduate Biology Assessment Update Report and AY 2007-2008 Assessment Plans.
In this Section, we present the plans that were submitted by the Graduate Biology for the WASC poster session.

1. Program Learning Objectives:

- a. Learning Objective Selected:
From WASC Poster Session for CS/CIS:
Demonstrate ability to conceive, conduct and report original research.
- b. Direct Measure of Assessment Selected for Assessment (Tool Used):
Evaluation and approval of thesis proposal and completed thesis by the student's Thesis Committee following publication presentation of research proposal and research results in seminars open to Guam's scientific community.
- c. Faculty Responsible for Assessment:
Contact Faculty: Dr. Alexander Kerr.
- d. Updated Report on Assessment:
Will begin assessment plans fall 2007.
- e. AY 2007-2008 Assessment Plans:
Graduate Biology must begin its program-level assessment plan using a direct measure of assessment by fall 2007. Graduate Biology must have evidences of SLO's at the program-level collected by spring 2008. By the end of fall 2008, Graduate Biology must complete its recommendations for program improvement using these findings.

3.6.2. Graduate Environmental Science Assessment Update Report and AY 2007-2008 Assessment Plans. In this Section, we present the plans that were submitted by Grad EV for the WASC poster session.

1. Program Learning Objectives:

- a. Learning Objective Selected:
From WASC Poster Session for CS/CIS:
Demonstrate a knowledge of current topics and research activities related to environmental science in the literature and in Guam.

- b. Direct Measure of Assessment Selected for Assessment (Tool Used):
Evaluation and approval of thesis proposal and completed thesis by the student's Thesis Committee following publication presentation of research proposal and research results in seminars open to Guam's scientific community.
- c. Faculty Responsible for Assessment:
Contact Faculty: Dr. Ross Miller.
- d. Updated Report on Assessment:
Will begin assessment plans fall 2007.
- e. AY 2007-2008 Assessment Plans:
Grad EV must begin its program-level assessment plan using a direct measure of assessment by fall 2007. Grad EV must have evidences of SLO's at the program-level collected by spring 2008. By the end of fall 2008, Grad EV must complete its recommendations for program improvement using these findings.

3.6. Physics Update Report and Assessment Plans. Dr. Tseng has been conducting his assessment on his natural science/physical science course with lab and in his university physics course with lab. He submitted his assessment results based on his pre-test and post-test. He submits his assessment results with his CFES Executive Summary Report for the past 2-3 AY's. Dr. Tseng must continue his assessment projects and complete his collection of evidences of SLO's by spring 2008. By the end of fall 2008, Dr. Tseng must complete his recommendations for program improvement using these findings.