NTID
Laboratory Science Technology Program Outcomes Assessment
Plan and Report for AY 2007-2008

Program Goal: To provide graduates with laboratory analytical testing knowledge and skills, for entry level positions, with scientific organizations.

Critical Outcomes for all Students		Assessment of Outcomes		Timeline		Results	
Domain/Task/ Capability	**Performance Criteria/ Benchmarks**	**Instrument/ Opportunity**	**Assessment of Performance**	**Develop**	**Collect**	**Summarization of Results**	**Use of Results**
1. General Skills and Professional Competence (Technical) **[Eighty percent (80 %)]** of all students will understand, use, and document appropriate laboratory skills related to safety, quality control, technical communication, and professional readiness.	a. Students will understand and apply safety regulations and protocols and correctly utilize safety equipment. b. Students will appropriately follow quality control procedures. c. Students will demonstrate effective technical communication of results. d. Students will develop a resume that is accurate, complete, and professional.	Portfolio review. To occur at the end of Laboratory Applications VI course (0879-206).	a.-d. Score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.	AY 2004-2005	Annually in the Laboratory Applications VI (0879-206) course.	9 students in the Laboratory Applications VI course were evaluated in academic year 2007-2008. 100% of students performed at or above the benchmark for all General Skills and Professional Competence sections.	Although students we assessed in a positive manor related to thei skills in this category program will continu emphasize general laboratory skills and professional compete in an effort to ensure our graduates are technically prepared. a result of prior year' Outcomes Assessmer efforts, we made a pu to increase the empha of the crucial topic o laboratory safety. Thi year's results for that item yielded an avera score of 2.6 (on a 0-3 scale). This is up slig from last year's avera score of 2.3, and up f 2.1 two years ago. W believe that this trend the result of a renewe effort the program's emphasis on these curricular items. The evaluated cohort of students represents th first group to have go through the complete revised safety curriculum. Last yea outcome assessment report predicted this increase in rating due the cohort coming in the "ground floor" of modified curriculum. However, the topic o laboratory safety is s important that we wo still like to see furthe improvement. Likew we would like to see improvement in the "Laboratory Informa Management" catego (average score of 2.3 year). This is also a t of great importance (specifically, maintai a laboratory notebook for general skills and professional compete
2. Instrumentation (Technical) **[Eighty percent (80 %)]** of all students will produce laboratory reports that demonstrate an understanding of the use of analytical instrumentation including: electroanalytical, spectroscopy, and chromatography instruments.	a. Students will demonstrate an understanding of how to set-up, run, and maintain selected electroanalytical probes/meters. b. Students will demonstrate an understanding of how to set-up, run, and maintain selected molecular	Portfolio review. To occur at the end of Laboratory Applications VI course (0879-206).	a.-e. Score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.	AY 2004-2005	Annually in the Laboratory Applications VI (0879-206) course.	9 students in the Laboratory Applications VI course were evaluated in academic year 2007-2008. 100% of students performed at or above the benchmark for all Instrumentation sections.	Although students we assessed in a positive manor related to thei skills in this category program will continu emphasize instrumentation knowledge and skills an effort to ensure th our graduates are technically competen We are thrilled that students appear to be

	spectrophotometers. c. Students will demonstrate an understanding of how to set-up, run, and maintain selected atomic spectrophotometers. d. Students will demonstrate an understanding of how to set-up, run, and maintain High Performance Liquid Chromatographers. e. Students will demonstrate an understanding of how to set-up, run, and maintain Gas Chromatographers/Gas Chromatographer – Mass Spectrometers.						performing so well i field of instrumental analysis; as the settin up, running, and maintaining of analyt instrumentation is on the primary expectati of the workplace.
3. Volumetric and Gravimetric Analysis (Technical) **[Eighty percent (80 %)]** of all students will produce laboratory reports that demonstrate an understanding of the processes involved in volumetric and gravimetric analyses including: sample preparation, titrations, and gravimetric techniques.	a. Students can perform sample preparation procedures and the corresponding calculations. b. Students can perform gravimetric procedures and the corresponding calculations. c. Students can perform acid/base titrations and the corresponding calculations.	Portfolio review. To occur at the end of Laboratory Applications VI course (0879-206).	a.-c. Score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.	AY 2004-2005	Annually in the Laboratory Applications VI (0879-206) course.	9 students in the Laboratory Applications VI course were evaluated in academic year 2007-2008. 100% of students performed at or above the benchmark for all Volumetric and Gravimetric Analysis sections.	Although students w assessed in a positive manor related to thei skills in this category program will continu emphasize volumetri and gravimetric knowledge and skills an effort to ensure th our graduates are technically competen last year's Outcomes Assessment report, w mentioned concern w the "sample preparati skill. Though last yea received a good scor average rating of 2.2 (on a 0-3 scale), we believed that the students' skills in sar preparation are even better than the statist show. Therefore, we modified the way tha have students docum their evidence for understanding this technique. We believ that this was helpful improving the averag rating for this skill to for this year's assessment. Students using this skill often appropriately) in mos their experiments, an now reporting this sk adequately.
4. Biological and Microbiological Techniques (Technical) **[Eighty percent (80 %)]** of all students will produce laboratory reports that demonstrate an understanding of biological and microbiological techniques including: tasks involving sterile technique and the identification/classification/ evaluation of microorganisms.	a. Students can identify/classify/evaluate microorganisms. b. Students can prepare media using sterile technique.	Portfolio review. To occur at the end of Laboratory Applications VI course (0879-206).	a.-b. Score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.	AY 2004-2005	Annually in the Laboratory Applications VI (0879-206) course.	9 students in the Laboratory Applications VI course were evaluated in academic year 2007-2008. 100% of students performed at or above the benchmark for "preparing media and using sterile technique", while 78% performed at or above the benchmark for "identifying/classifying/evaluating microorganisms" in the Biological/Microbiological Techniques sections.	Although students w assessed reasonably related to their skills this category, the program will continu emphasize biological microbiological knowledge and skills an effort to ensure th our graduates are technically competen For the third consecu year, this category yielded some of the lowest relative averag scores (though not ba

							overall). To this end, have begun curricula action to substitute o of the Microbiology courses in the progra mask with a Molecul Biology course. This program change wou not only help the program to remain current with the field should also help to address some of the identified student weaknesses that have surfaced as a result o our Outcomes Assessment initiative As well, the remainir Microbiology course the Biotechnology course are going thro curricular review. We believe that modifications to thes course will improve ratings in this catego and ultimately produ graduates with strong biology knowledge.
Co-op Work experience	Having completed a job search process, a student will complete at 10-week co-op work experience.	Assessment will occur prior to graduation by a Co-op supervisor.	80% of the students will successfully complete a 10-week program-related work experience and receive a score of 3 or above (5 point scale) on overall Co-op performance.	AY 2004-2005	TBD	The mean rating of LST student by co-op supervisors who completed the evaluation online was 4.8 (N=5) during the four quarters 20064-20073.	We are pleased that c op supervisors rate o students so high in overall satisfaction w our students. We beli that this is one of the best metrics for evaluating the efficac a program's curriculu and have always felt our students are very well trained in practi applications of Laboratory Science a prepared to contribut the host lab with minimal training whi on co-op. Inasmuch a we value these evaluations, we hope improve the percenta of supervisors who complete the online evaluations.
Job Placement	Students will gain entry-level employment in the LST field	NCE Data	90% of graduates will be employed in the field.	Ongoing	Annually	For AY 2005-2006 n=8; 100% of students seeking employment were working	In every case where a individual is not look for a job, the graduat of the LST program a continuing in baccalaureate progra as a result of a newly established transfer degree from the LST program. In the futur we hope to monitor t success of these stud in their transfer programs. Of the remaining students, v are thrilled that 100% finding permanent jo We aim to keep up o placement of student the student enrollmer the program continue expand.
80 % of graduating students will indicate overall satisfaction with the program and the	Graduating students will indicate overall satisfaction with program and courses.	Student Satisfaction Survey	Students will indicate they *Strongly Agree* or *More Agree than*	AY 2004-2005	Annually	8 students in the Laboratory Applications VI course completed surveys in academic year 2007-2008 related to student	Although students indicated overall satisfaction with thei courses, we examine

courses.			*Disagree* (4-point scale) when asked to give an overall rating on two global items, one related to the program in general and the other related to the courses in the major.			satisfaction. 100% indicated overall satisfaction with the program. •100% responded "Agree Strongly" with question "I would recommend the Laboratory Science Technology Program to other students." 100% indicated overall satisfaction with the courses in their major. •100% responded "Agree Strongly" to the question "I was satisfied with what I learned in the Laboratory Science Technology program."	the results from the assessment of indivic courses and found th following informatio •Of the 8 categories c courses, 5 received overall ratings of bet than average in the extent to which the courses improved the skills. The Instrumentation serie courses, Principles of Chemistry series of courses, Chemical/Biotechnol Fundamentals of Biology, and Fundamentals of Chemistry series of courses were all rece overall ratings above average. These series courses also received high scores last year, it appears that we are doing well to satisfy student in these cours The Lab Math series courses received an overall rating of aver which we are pleased say is an improvemer from last year. The Laboratory Applicati series of courses received overall ratin of average, as they di last year. •Microbiology series courses were somewl disappointing, receiv overall ratings below average. Of most concern, 50% of the students rated their Microbiology course "some but not much" improving their skills These courses are go through curricular an faculty changes.

Comments:

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