



2014-2015 Assessment Cycle

Key Findings

Finding per Measure

Laboratory Science Technology AAS/AOS Program Outcome Set

1. Develop and document appropriate laboratory safety skills, quality control, technical communication, and professional readiness

a. Apply safety regulations and protocols and correctly utilize safety equipment

▼ **Measure:** Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material in LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen students in the Laboratory Methods course were evaluated in academic year 2014-2015.

100% of the students performed at or above the benchmark for safety-related skills in the General Skills and Professional Competence sections.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The concerted effort to emphasize safety in the workplace has succeeded (100% completion and understanding) for the last 6 years. Continued effort to emphasize safety will continue in LST coursework. Students will be encouraged to complete the RIT laboratory safety training course and to include a certificate of completion in their LST portfolio.

Reflections/Notes : The effort to emphasize safety in the workplace will continue. We believe the safety at work benchmark should be 100% every year to assure student safety in any laboratory as this skill is critical in coursework, on co-op, and in future jobs.

b. Demonstrate adherence to quality control procedures

▼ **Measure:** Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material in LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen students in the Laboratory Methods course were evaluated in academic year 2014-2015.

100% of the students performed at or above the benchmark for Quality Control-related skills in the General Skills and Professional Competence sections.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The program will continue to emphasize topics related to quality control owing to the importance of this issue in preparing students' laboratory skills for future baccalaureate-level coursework as well as on-the-job readiness.

Reflections/Notes : The benchmark for quality control was exceeded for the student cohort that began the LST program during AY 2013-2014. Our continued efforts to support this benchmark will be continued.

c. Demonstrate effective technical communication of results

▼ **Measure:** Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material in LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen students in the Laboratory Methods course were evaluated in academic year 2014-2015.

100% of the students performed at or above the benchmark for technical communication skills in the General Skills and Professional Competence sections.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Technical communication will continue to be emphasized in the LST program course work.

Reflections/Notes : The LST program has exceeded the benchmark for technical communication. Our continued efforts to support this benchmark will be continued.

d. Develop a professional resume

▼ **Measure:** Laboratory Methods Course [NLST-260]- Resume in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of resume found in the LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260]- Resume in the LST Portfolio

Summary of Findings: Sixteen students on the Laboratory Methods course were evaluated in academic year 2014-2015.

100% of the students performed at or above the benchmark for resume-writing skills in the General Skills and Professional Competence sections.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Professional resume development was highly emphasized in the LST program for this cohort of students as it was developed not only in Laboratory Methods, but also in Laboratory Applications (NLST 225) through the participation of a staff member of NTID's Center on Employment as a co-instructor. As a result, the benchmark for the development of a professional resume exceeded expectations.

Reflections/Notes : Continued professional resume development has been made a priority for our students. Successful placement of LST students, in co-op or future professional positions, depends in part on successful resume development.

2. Demonstrate use of analytical instrumentation including: electroanalytical, spectroscopy, and chromatography instruments

a. Demonstrate processes and procedures to set-up, run, and maintain selected electroanalytical probes/meters

▼ **Measure:** Quantitative Instrumental Analysis Course [NLST-250] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material found in the LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Quantitative Instrumental Analysis Course [NLST-250] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen LST students in the Laboratory Methods course were evaluated in academic year 2014-2015 and 100% of the students performed at or above the benchmark.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The use of electroanalytical throughout the laboratory experiments in the Quantitative Instrumental Analysis course will continue to be emphasized.

Reflections/Notes : This component has again surpassed expectations although it may be better to use laboratory reports from other courses as evidence of students' mastery of meters, beyond that of the pH meter.

b. Demonstrate how to set-up, run, and maintain selected molecular spectrophotometers

▼ **Measure:** Quantitative Instrumental Analysis Course [NLST-250] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material found in the LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Quantitative Instrumental Analysis Course [NLST-250] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen LST students in the Laboratory Methods course were evaluated in academic year 2014-2015 and 81% of the students performed at or above the benchmark.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The use of molecular spectrophotometers throughout the laboratory experiments in the Quantitative Instrumental Analysis Course will continue to be emphasized.

Reflections/Notes : This component has again surpassed expectations.

c. Demonstrate how to set-up, run, and maintain selected atomic spectrophotometers

▼ **Measure:** Quantitative Instrumental Analysis Course [NLST-250] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material found in the LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Quantitative Instrumental Analysis Course [NLST-250] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen LST students in the Laboratory Methods course were evaluated in academic year 2014-2015 and 94% of the students performed at or above the benchmark.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The use of atomic spectrophotometers throughout the laboratory experiments in the Quantitative Instrumental Analysis Course will continue to be emphasized.

Reflections/Notes : This component has again surpassed expectations.

d. Demonstrate how to set-up, run, and maintain High Performance Liquid Chromatographers

▼ **Measure:** Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material in LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen LST students in the Laboratory Methods course were evaluated in academic year 2014-2015 and 100% of the students performed at or above the benchmark

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The use of High Performance Liquid Chromatographers throughout the laboratory experiments in the Quantitative Instrumental Analysis course will continue to be emphasized.

Reflections/Notes : This component has again surpassed expectations.

e. Demonstrate how to set-up, run, and maintain Gas Chromatographers/Gas Chromatographer – Mass Spectrometers

▼ **Measure:** Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material in LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen LST students in the Laboratory Methods course were evaluated in academic year 2014-2015 and 88% of the students performed at or above the benchmark.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The use of Gas Chromatographers/Gas Chromatographer-Mass Spectrometers throughout the laboratory experiments in the Quantitative Instrumental Analysis Course will continue to be emphasized.

Reflections/Notes : This component has again surpassed expectations.

3. Demonstrate processes involved in volumetric & gravimetric analyses including: sample preparation, titrations, & gravimetric techniques

a. Perform sample preparation procedures and the corresponding calculations

▼ **Measure:** Analytical Chemistry Course [NLST-220] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material found in the LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Analytical Chemistry Course [NLST-220] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Seventeen students in the Laboratory Methods course were evaluated in academic year 2013-2014.

100% of students performed at or above the benchmark for Sample Preparation-related skills in the Volumetric/Gravimetric Analysis section.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Continue to emphasize these skills in coursework to maintain a high level of student competence.

Reflections/Notes : Students continue to perform exceedingly well in skills related to Volumetric/Gravimetric Analysis. Skills in this category are considered to be an expected level of bench skills for individuals entering this field of work.

b. Perform gravimetric procedures and the corresponding calculations

▼ **Measure:** Analytical Chemistry Course [NLST-220] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material found in the LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Analytical Chemistry Course [NLST-220] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Seventeen students in the Laboratory Methods course were evaluated in academic year 2013-2014.

94% of students performed at or above the benchmark for Gravimetric-related skills in the Volumetric/Gravimetric Analysis section.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Continue to emphasize these skills in coursework to maintain a high level of student competence. Work more closely with students to guide timely submissions of evidence of demonstrated skills to their portfolios.

Reflections/Notes : One student in this group did not submit any evidence of demonstrated gravimetric skills although they did complete several laboratory activities and corresponding reports on this topic. The student's electronic files were lost before

they could submit them to their portfolio. In general, students continue to perform exceedingly well in skills related to Volumetric/Gravimetric Analysis. Skills in this category are considered to be an expected level of bench skills for individuals entering this field of work.

c. Perform acid/base titrations and the corresponding calculations

▼ **Measure:** Analytical Chemistry Course [NLST-220] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material found in the LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Analytical Chemistry Course [NLST-220] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Seventeen students in the Laboratory Methods course were evaluated in academic year 2014-2015.

100% of students performed at or above the benchmark for Titrametric-related skills in the Volumetric/Gravimetric Analysis section.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Continue to emphasize these skills in coursework to maintain a high level of student competence.

Reflections/Notes : Students continue to perform exceedingly well in skills related to Volumetric/Gravimetric Analysis. Skills in this category are considered to be an expected level of bench skills for individuals entering this field of work.

4. Demonstrate biological & biotechnology-related techniques including: sterile technique & manipulation of proteomic & genomic material

a. Demonstrate appropriate use of sterile technique

▼ **Measure:** Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material in LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen students were evaluated during the academic year 2014-2015. 100% of the students performed at or above the benchmark for demonstration of appropriate use of sterile technique.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : All of the lab activities reviewed above involved students developing skills in the proper handling biological materials aseptically. There has yet to be shown evidence that students are additionally acquiring practice in the preparation of media/reagents that are sterile. This would likely be due to time constraints within the labs themselves, but might be a consideration in the future.

Reflections/Notes : Although this technique has been listed in this report as corresponding with the Laboratory Methods (NLST 260) course, students actually learn and apply it across a number of the program's biology- and biotechnology-related courses: Fundamentals of Biology I (NSCI 161), Biotechnology I (NLST 240), and Biotechnology II (NLST 245). The course assigned to this measure will be changed in future outcomes assessment reports.

b. Perform proteomic and genomic manipulation techniques

▼ **Measure:** Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio
Course level; Direct - Portfolio

Details/Description: Review of laboratory reports and ancillary course material in LST Portfolio

Acceptable Benchmark: 80% of all students will obtain a score of at least "2" ("acceptable/meets entry level professional standards") on all related items on the Laboratory Science Technology portfolio rating sheet.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Lab Reports and Ancillary Course Material in the LST Portfolio

Summary of Findings: Sixteen students were evaluated during the academic year 2014-2015. 100% of the students performed at or above the benchmark for performing proteomic and genomic manipulation techniques.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Lab techniques above related to genomic material included purifying plasmid DNA, quantitating plasmid DNA, copying plasmid DNA (PCR), enzymatic digestion of plasmid DNA (Forensic fingerprinting) and putting plasmid DNA into bacteria (transformation). Genomic manipulation is covered through a variety of activities over both NLST-240 and NLST-245, whereas proteomic manipulation is essentially the focus of the second half of the NLST-245 course. It might be prudent to expand proteomic-related activities in the future.

Reflections/Notes : Although this technique has been listed in this report as corresponding with the Laboratory Methods (NLST 260) course, students actually learn and apply it across a number of the program's biology- and biotechnology-related courses: Fundamentals of Biology I (NSCI 161), Biotechnology I (NLST 240), and Biotechnology II (NLST 245). The course assigned to this measure will be changed in future outcomes assessment reports.

5. Develop professional skills required to be effective on the job

a. Engage productively in a collaborative team project

▼ **Measure:** Laboratory Methods Course [NLST-260] - Team Project
Course level; Indirect - Other

Details/Description:

Acceptable Benchmark: 80% of students will score "3" or higher on a rubric scale of 1-5.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Team Project

Summary of Findings: Sixteen students in the Laboratory Methods course were evaluated in academic year 2014-2015.

100% of the students performed at or above the benchmark for safety-related skills in the General Skills and Professional Competence sections

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Coursework will continue to emphasize collaborative teamwork in the LST curriculum.

Reflections/Notes : The LST program has exceeded the benchmark for collaborative team work. Our efforts to support this benchmark will continue.

b. Accurately and clearly present technical information to peers

▼ **Measure:** Laboratory Methods Course [NLST-260] - Project
Course level; Direct - Student Artifact

Details/Description:

Acceptable Benchmark: 80% of students will score "3" or higher on a rubric scale of 1-5.

Implementation Plan (timeline): Annually

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Laboratory Methods Course [NLST-260] - Project

Summary of Findings: Sixteen students in the Laboratory Methods course were evaluated in academic year 2014-2015.

100% of the students performed at or above the benchmark for safety-related skills in the General Skills and Professional Competence sections.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The LST program's course work will continue to emphasis in accurate and clear technical presentations.

Reflections/Notes : The LST program has exceeded the bench mark for technical communication. Our continued efforts to support this benchmark will be continued. The LST program has exceeded the bench mark for technical presentations.

c. Apply technical knowledge and skills on a co-operative work experience

▼ **Measure:** Co-op Work Experience [NLST-299] - RIT Supervisor Co-op Evaluation
Course level; Direct - Other

Details/Description:

Acceptable Benchmark: 80% of the students will successfully complete a program-related work experience and receive a score of "3" or higher (5 point scale) on Overall Co-op Performance

Implementation Plan (timeline): Annually, end of summer.

Key/Responsible Personnel: Collected by NTID Center on Employment (NCE)

Findings for Co-op Work Experience [NLST-299] - RIT Supervisor Co-op Evaluation

Summary of Findings: Of the sixteen students who initiated a co-operative experience during the AY 2014-2015 summer term, 13 of them worked a sufficient number of hours to complete the assignment. Of these 13 students, all of them (100%) received a score of 3 or higher on the evaluation that their co-op supervisors submitted on their behalf. The average score for this group of students (N = 13) was 4.7.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : The success of LST students on co-op is a flagship of the program. Our students continue to receive high marks from their supervisors. Ensuring that all students who begin their co-op complete it in a timely fashion remains a goal of this program, which means that it will be necessary to support the three students who have not finished this requirement such that they can complete the necessary number of hours during the current academic year.

Reflections/Notes : We have always felt that co-op supervisor satisfaction is one of the best metrics for evaluating the efficacy if a program's curriculum and believe that our students are very well trained in practical applications of Laboratory Science and are prepared to contribute to the host lab with minimal training while on co-op.

Although it is not absolutely necessary, to keep students on track with completion of the degree we prefer that they are able to complete the co-op requirement in its entirety during the summer term of their second year in the program. Three students did not meet this goal but will be working during the current academic year to complete the total number of hours necessary for this program requirement.

d. Gain entry level employment in the laboratory science field

Measure: NCE Job Placement Data

Details/Description:

Acceptable Benchmark: 90% of graduates who are seeking employment in the laboratory science field will be employed.

Implementation Plan (timeline): Annually, Spring semester starting 2016/2017

Key/Responsible Personnel: Collected by NTID Center on Employment (NCE)

Findings for NCE Job Placement Data

Summary of Findings: 100% of the students who sought employment upon completion gained employment. Three of these students received AAS degrees while one received the AOS degree.

Results: Acceptable Benchmark Achievement: Exceeded

Recommendations : Of course, we wish to see all of our graduates gain employment upon completion of the program, but we are aware that many of them go on to pursue more advanced degrees. Gaining a sense of how they matriculate further and how well the LST program prepares them for these programs will help to round out this picture.

Reflections/Notes : A considerable number of students who complete the LST degree go on to matriculate into a baccalaureate-level program at RIT or elsewhere. It is not clear from this data whether these students found a job right after they graduated from the LST program or if they did so after completion of a more advanced degree. Understanding this data and supporting our graduates regardless

of their ultimate degree will be important going forward.

e. Assess program preparation and course satisfaction

▼ **Measure:** Student Satisfaction Survey
Program level; Indirect - Survey

Details/Description:

Acceptable Benchmark: 80% of students will indicate they Strongly Agree or More Agree than 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.

Implementation Plan (timeline): Annually, Fall semester starting 2015/2016

Key/Responsible Personnel: Collected by LST Assessment Coordinator or Program Director

Findings for Student Satisfaction Survey

Summary of Findings: Twelve of 13 students (92%) indicated that they were satisfied with what they learned in the program through their coursework by providing responses of "agree" or "strongly agree" to the question "I am satisfied with what I learned in the Laboratory Science Technology program."

Nine of 13 students (69%) were satisfied with the overall program by providing responses of "agree" or "strongly agree" to the question "I would recommend the Laboratory Science Technology program to other students." Because a five-point Likert scale was used in this survey for the first time this year, an additional three students responded that they were "undecided" about whether or not to recommend the program to other students.

Results: Acceptable Benchmark Achievement: Met

Recommendations : The program continues to receive strong evaluations from students with many positive responses received to subquestions that pertain to helping students decide on career goals, developing problem-solving skills, and using laboratory technology well. Students also felt on the whole that faculty were available for additional help, that they were prepared for the courses they taught, that LST courses will support their future success, and that the program's equipment and software were up-to-date. From the perspective of the students, the program is therefore working as it was designed and we have a strong set of faculty who are leading their instruction.

One course, Laboratory Mathematics (NLST 232) continues to be an area of concern. This course received the lowest number of "helped a lot" responses and was the only course that received several "did not help at all" responses. Review of this course is therefore necessary going forward to ensure that students benefit from it and respond to it favorably. Determining how to redesign or to replace this course will be a goal for the next several years.

Reflections/Notes : On this survey students responded quite positively to questions pertaining to each of the LST core courses. A strong majority (generally 12 of 13 students) responded that each course helped them "a lot" or "an average amount" to improve their skills. The courses that received the highest scores (a total of 8 responses for "helped a lot") from students were Fundamentals of Biology I (NSCI 161), Principles of Biochemistry (NLST 235), and not surprisingly LST. Co-Op (NLST 299). Courses that received a slightly lower number of "helped a lot" responses were the soft skills courses Laboratory Tools (NLST 120), Laboratory Applications (NLST 225), and Laboratory Methods (NLST 260); Fundamentals of Biology II (NSCI 162), Quantitative Instrumental Analysis (NLST 250), and Biotechnology I (NLST 240). The chemistry courses Fundamentals of Chemistry I (NLST 171), Fundamentals of

Chemistry II (NLST 172), Analytical Chemistry (NLST 220), Chemical Separations & Chromatography (NLST 255), and Principles of Organic Chemistry (NLST 230) all received slightly lower but still positive ratings of at least 5 "helped a lot" responses with most of the remainder of the responses being "helped an average amount."

Laboratory Mathematics (NLST 232) is the one core LST course that is taken when a student can fit it into her/his academic schedule. We are finding that students often cannot take this course until the fall or spring semester of the second year of the program owing to the amount of English courses they must take and also because of the number of lab-based courses in the LST program, meaning that they have close to an 18-credit load for most semesters. Students who place into the lower end of the AAS English track must take two English courses (NENG 221 and NENG 222; NENG 231 and NENG 232) simultaneously during a given academic term, which prevents them from taking Lab Math and also the required general education liberal arts courses. By the time a student is able to take Lab Math, it is often spring semester of the second year of the program by which time students have already learned through their other coursework many of the math skills presented in this course. Some students therefore see the course as a rehash of what they have already learned elsewhere.

Overall Recommendations

No text specified

Overall Reflection

No text specified

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