STARK STATE COLLEGE
ASSESSMENT SUMMARY REPORT

Department/Division	Chair/Dean
Sciences	**James Treacle, Dean**
Degree Program(s)/Options(s)/Certificates(s)	**Academic Year (20xx/20xx)**
Associate of Science General, Associate of Science Biology, Associate of Science Chemistry, Associate of Science Physics, Associate of Applied Science Biotechnology, Career Enhancement Certificate Biotechnology	**2014/2015**

The annual assessment summary report assists the College in documenting assessment progress and provides department chairs with assessment data needed to complete their academic program review. Department chairs will summarize information for the courses assessed in their department during the academic year. Chairs will forward their department summary report to their dean by June 14. Deans will summarize information for the courses assessed in their division and forward their division report to the Provost by July 7. The Provost will prepare an Academic Affairs' assessment report by July 31.

1. Summary of milestones

a. Courses assessed/total number of eligible courses in your department or division = 22/47 = 43.5%

Eligible courses reflect all approved courses in your department/division, including courses with an effective date, during this academic year.

(Please provide numbers, including zero (0), in the blanks below. These numbers reflect all the SECTIONS that have been assessed. If not applicable, indicate with an NA.)

Faculty:	24 FT	16 Adjunct		
Modality:	53 F2F	2 W2	3 W3	N/A W4
Campus:	45 Main	3 Satellite	6 Dual Enrollment	0 Early College
Time:	43 Day	8 Evening	1 Weekend	

b. Courses re-assessed during this past academic year = 2

Report number of courses as re-assessed only if they fell below the college minimum standard of 70% OVERALL.

(Please provide numbers, including zero (0), in the blanks below. These numbers reflect all the SECTIONS that have been re-assessed. If not applicable, indicate with an NA.)

Faculty:	9 FT	10 Adjunct		
Modality:	16 F2F	N/A W2	3 W3	N/A W4
Campus:	13 Main	1 Satellite	2 Dual Enrollment	0 Early College
Time:	12 Day	4 Evening	0 Weekend	

c. Programs, options, certificates affected by assessment/eligible programs, options , certificates= 6/6 = 100% (ex. 1/3=33%)

d. Departments participating in assessment/eligible departments= 3/3 = 100% (**To be completed by Deans ONLY)** (ex. 4/4=100%)

2. Provide a brief summary of the previous year's data that was collected related to the outcomes and the plans for improvement implemented. Did the plans for improvement implemented assist the department in achieving the goals?

Courses assessed in the Sciences Division this academic year were: Intro to Anatomy and Physiology (BIO101), General Genetics (BIO241), Introduction to Biotechnology (BST120), Basic Biotechnology Methods (BST121), Bioinformatics (BST240), Physical Geology (GEO141), General Biology I (BIO141), General Biology II (BIO142), Biotechnology Seminar I (BST130), Bioprocesses and Manufacturing (BST250), Modeling and Simulation (CST121), General, Organic and Biochemistry II (CHM122), General Chemistry I (CHM141, General Chemistry II (CHM142), Organic Chemistry I (CHM241), Organic Chemistry II (CHM242), Biochemistry I (CHM243), Biochemistry II (CHM244), College Physics II w/ Algebra (PHY122), General Physics I w/ Calculus (PHY221), General Physics II w/ Calculus (PHY222) and Special Topics in Science (SCI273). Courses that were reassessed in the fall were Human Biology (BIO127) and in the spring Intro to Anatomy and Physiology (BIO101).

Out of the 22 courses assessed, three (14%) will need reassessed next academic year: BIO142, BIO241, and BST240. Plans for improvement for these courses are listed below.

1. BIO142:
   a. GLO2 Quantitative Literacy – students will be given more practice problems and examples
   b. GLO3 Information Literacy – more emphasis will be placed on summarizing the vast amount of information presented on evolution. Students will be given study tips and methods on how to memorize and apply this information.
   c. GLO4 Critical Thinking - more emphasis will be placed on summarizing the vast amount of information presented on evolution. Students will be given study tips and methods on how to memorize and apply this information.
   d. GLO5 Global and Diversity Awareness – more time and non-graded assessments will be spent on biomes and their significance on global biodiversity.
2. BIO241:
   a. GLO4 Critical Thinking –additional in-class sessions on critical thinking problems will be added to help students synthesize and apply concepts covered in the unit lesson. Additionally, "challenge questions" such as essay questions or scenario problems that require critical thinking will be added to each unit test.
3. BST240
   a. GLO1 Effective Communication – based on the structure of this course, it appears that attendance was the main factor leading to students not achieving the 70% or greater. Therefore an attendance policy will be put in place the next time this course is run.
   b. GLO2 Quantitative Literacy – same as above
   c. GLO3 Information Literacy – same as above
   d. GLO4 Critical Thinking – same as above

Out of the two courses reassessed this year, BIO101 still fell below 70% for effective communication (GLO1) and will be reassessed next fall. Human Biology (BIO127) achieved a 71% for GLO1 Effective Communication. For this GLO students were assessed on their performance on Exam 3 which contained a significant written portion. BIO101 is still struggling to meet the 70% benchmark for GLO1 Effective Communication. Out of 213 students assessed, only 145 (68%) achieved a 70% or better for this GLO. Achieving a 70% or higher in this category for BIO101 is an on-going struggle. As a department we have implemented a new journaling assignment to try and have the students practice their written communication skills. This seemed to have some positive impact, but not enough. We are also looking at changing the textbook so students will have access to enhanced study tools and on-line resources, which will give them more opportunities to work with material and receive individualized feedback. The course mentor has also suggested that we look at adding developmental writing as a prerequisite to the course.

For the reassessment of Human Biology (BIO127) 61/86 (71%) of the students achieved a 70% or higher on Exam 3, which was used to assess their ability at effective communication (GLO 1). Improvements to this course are being explored, such as adding components of the on-line resources from Cengage, MindTap. Specific modules/learning aids from MindTap will be added to a master course in ANGEL so all faculty and students teaching and taking the class will have access to these resources. Students will be able to received individualized feedback and instructors will have tools that they can use in class to better engage students and receive immediate feedback as to whether or not the students are understanding the material being presented.

3. List the evaluation methods used to evaluate the GLOs and PLOs. Refer to examples on the course assessment templates and in the assessment handbook available on *mystarkstate*.

General Learning Outcomes (GLOs)		Program Learning Outcomes (PLOs)
Written exams, quizzes (multiple choice, matching, short answer, essay, includes proper spelling); Comprehensive final exam	Effective Communication (GLO1); Quantitative Literacy (GLO2); Information Literacy (GLO3); Critical Thinking (GLO4); Global and Diversity Awareness (GLO5); Civic, Professional, and Ethical Responsibility (GLO6)	
Written Lab Reports and Seminar Presentations	Effective Communication (GLO1); Quantitative Literacy (GLO2); Information Literacy (GLO3); Critical Thinking (GLO4); Ethical Responsibility (GLO6)	Seminar Presentation from SCI273 – Special Topics in Science
Laboratory Notebook	Effective Communication (GLO1); Critical Thinking (GLO4); Ethical Responsibility (GLO6)	Laboratory notebook from SCI273 – Special Topics in Science

Laboratory Experiments	Quantitative Literacy (GLO2)	Performance Review from SCI273 – Special Topics in Science
Research Papers	Effective Communication (GLO1); Information Literacy (GLO3); Critical Thinking (GLO4)	
Exhibitions and Demonstrations	Quantitative Literacy (GLO2); Information Literacy (GLO3); Critical Thinking (GLO4)	
Research Project	Effective Communication (GLO1); Quantitative Literacy (GLO2); Information Literacy (GLO3); Critical Thinking (GLO4); Civic, Professional, and Ethical Responsibility (GLO6)	Weekly update reports and final seminar presentation from SCI273 – Special Topics in Science

4. What evidence do you have that students achieved or did not achieve the learning outcomes? (Please include evidence of students achieving the learning outcomes.)

The GLO's identified on the master syllabus were reviewed for accuracy. Course objectives that support the GLO's were also identified. The raw numbers and percentages of students were then reported for each section of the course. If 70% or more of the class achieved below the 70% College standard, plans for improvement were identified. The sections assessed were then summarized to create a course summary. Course summaries for each of the courses assessed were used to identify areas where the general learning outcomes were achieved and areas for improvement.
This year 2 courses offered in the Sciences Division were assessed and two courses were reassessed. In all but 3 of the courses assessed this academic year, composite results indicated students achieved a 70% or higher in all of the General Learning Outcome (GLO) categories.

Table 1 below lists a summary by GLO all of the courses assessed this academic year, while Table 2 lists the two courses that were reassessed this year. The number of sections assessed for each course is noted in the left hand column and the number of students evaluated for each GLO is indicated in its respective box. The percentages shown are the number of students who passed assignments associated with the GLO with a 70% or higher.

Table 1: GLO's Assessed in 2014/205

Sections Assessed	GLO1: Effective Communication	GLO2: Quantitative Literacy	GLO3: Information Literacy	GLO4: Critical Thinking	GLO5: Global & Diversity Awareness	GLO6: Civic, Prof., & Ethical Resp.
55/66 = 83% of sections of	**622/705 = 88%**	**329/343 = 96%**	**617/759 = 81%**	**358/404 = 89%**	**203/219 = 93%**	**177/192 = 92%**

the courses that were assessed.						

Table 2: Courses Reassessed in 2014/2015

	GLO1: Effective Communication	GLO2: Quantitative Literacy	GLO3: Information Literacy	GLO4: Critical Thinking	GLO5: Global & Diversity Awareness	GLO6: Civic, Prof., & Ethical Resp.
Intro to A&P (BIO101) 13/22 sections assessed	**Essay question = 145/213 (68%)**	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Human Biology (BIO127) 6/6 sections assessed	Written exam 3 (ch 3 & 8) = 61/86 (71%)	Not Assessed	Not Assessed	Not Assessed	Not Assessed	Not Assessed

5. Outline and summarize the action plans that have been developed to improve student learning based on the evidence for this year.

Although most of the assessed sections were successful, the departments have each devised plans based on this year's summary for increasing success.

Biology:

1. Introduction to Anatomy & Physiology (BIO101): students will continue to write journals (summarizes) of specific topics as directed by their instructors. Students who are not performing well (<70% on exams and/or other assignments) will be directed to the Science Learning Center to work with a tutor, with particular attention to the journal entries. The tutors will be trained on what type of help they are to give students on these assignments. Each instructor may also provide the feedback if they feel more comfortable directly working with the student. Instructors may also take more time or provide handouts on their expectations of what should be included in an essay response, as this is where many students are struggling according to our assessment. Individualized feedback will also be provided to students to let them know what they did well and where they need to improve. Instructors will receive training on this technique based on what was gained through the micro-messaging professional development that took place during the fall and spring semester.
2. General Biology II (BIO142) & General Genetics (BIO241): Similar to the strategies discussed above for BIO101, students will be given more practice, clearer instructions/expectation, and individualized feedback for their essay responses. Again, successful completion of essay questions on exams seemed to be an area of weakness for these courses.

Bioinformatics (BST240): Attendance was identified as a major contributing factor to students not being successful in this course. An attendance policy and points for attendance and participation.

Chemistry:

CHM 122

Even though 100% of the assessed sections had an average greater than 70% for the all the criteria for their respective GLO's, the CHM 122 faculty will continue

1) To emphasize problem solving strategies and critical thinking skills
2) To develop and revise as necessary the new lab manual which emphasizes problem solving and critical thinking.

CHM 141/142

Since there are only three sections of CHM 141 and two sections of CHM 142, even a small number of students falling below 70% in the assessment criteria can greatly influence the assessment outcome. In general, students appear to be struggling in the lab practicals and in the final exam. Therefore the CHM 141/142 faculty will

1) Review with their classes (have a recitation period) with their classes before the lab practicals and final exam

CHM 241/242

There was only one section each offered for these courses. Nevertheless the students performed very well with greater than 70% of them scoring 70% or higher in all the assessment criteria. Still the CHM 241/242 faculty will continue to emphasize

1) To emphasize problem solving strategies and critical thinking skills

CHM 243/244

There was only one section each offered for these courses. Nevertheless the students performed very well with greater than 70% of them scoring 70% or higher in all the assessment criteria. Still the CHM 243/244 faculty will continue to emphasize

1) To emphasize problem solving strategies and critical thinking skills

Physics:

In no course did any area of achievement fall below the 70% mark. These three courses tend to have high performing students. The students tend to be students who are intending to pursue a 4 year degree or are pursuing more challenging two year degrees. As a result, these students tend to do well and are prepared coming into the classes. Given the academic goals of the students it is our intent

to continue to maintain academic rigor as well as ensure the content of the class is consistent and appropriate across all platforms of material being presented (lecture, lab, online homework, text book).

6. What steps did you take to ensure shared responsibility from faculty/staff/students/advisory boards/etc. for student learning and assessment of student learning?

Assessment is included as an agenda item at departmental meetings.

All Master and Course Syllabi, as well as other shared resources, are posted on Angel for access by all full-time and adjunct faculty.

Assessment training is held for the course mentors/facilitators to assist them in preparing for the assessment process. As courses are assessed, there is regular email and phone contact with all faculty involved in the assessment process.

Advisory committees for the Biotechnology and Biology Programs meet once each semester to ensure that our courses provide the outcomes necessary for our students to be competitive in the current job market. Members also help to construct the Program Learning Outcomes.

Full-time faculty form small groups to evaluate specific courses, including text book review, grading rubrics, standardized assignments, as well as brainstorm idea to help improve student success in courses with high WDF rates.

Full-time faculty have included a student success goal on their Performance Evaluations.

Course mentors examine retention and enrollment reports to target specific areas for improvement.

Faculty refer to areas of the Divisional Strategic Plan that addresses student learning and success.

7. Identify the steps you plan to take to improve the effectiveness of the efforts to assess and improve student learning for next year.

Steps for Improvement	Resource(s) Needed
Monitor success of grading rubrics.	Focus group meetings to review the results when rubrics were used.
Plan active learning educational opportunities in the Science Learning Center	Science Learning Center personnel. May required additional physical space (additional room) and/or computers.
Expand peer mentoring in open labs and in faculty lab courses.	Student peers, Biology Department lab coordinator, select faculty. Funding.
Provide regular Science Learning Center workshops on topics students find especially difficult.	Biology faculty; additional classroom space outside of the Science Learning Center.

Encourage faculty attendance at Best Practices workshops and professional development opportunities.	Funding for off-campus professional development opportunities.
Review the outcomes of faculty's student success goals (addressed on Performance Evaluations).	Meet with faculty throughout the year to review the progress they are making on their goals and assess if additional resources are needed.
Track enrollment and retention data to measure the effectiveness of action plans from current and past assessment periods.	Access to reports in ARGOS; Biology faculty sub-committee to review the data and report findings and suggestions to the department.
Review and Revise Lab Manuals	
Emphasize problem solving and critical thinking skills and strategies	