

2017 Health Science Individualized Major Annual Assessment Report

I. Annual Assessment Meetings:

July 27, 2016: Deb Gagnon, Kristina Blake, Sarah Markowitz, Lindsay Burwell, and Nicole Pellegrino met to revised the 4 individualized HS major tracks, to be one individualized HS major.

October 2016: The NMS Division met to discuss who would be the point person for each NMS major assessment plan and report. Kristina Blake is the point person for the individualized HS major.

Jan 2017: Deb Gagnon, Kristina Blake, Sarah Markowitz met to discuss the assessment data collected from the 2016 HS100 final project and make modifications to the Spring 2017 HS100 course.

April 20, 2017: Christina Schmidt, Kristy Blake, and Jackie Schnurr met to discuss offering BIOL 130L in Fall, changing BIOL 114L to a 200-level course with BIOL 130L as a prereq because students in BIOL 114L were not making appropriate progress due to the amount of material that needed to be covered in only one course.

May 2, 2017: Chris Bailey, Lindsay Burwell, Christina Schmidt, Kristy Blake, and Jackie Schnurr met to establish a plan for assessment reports and plans and to share major objectives and course objectives in Google Docs.

May 15, 2017: HS committee members Deb Gagnon, Kristina Blake, Sarah Markowitz, Lindsay Burwell, and Tom Stiadle met to discuss the 2017 report and plan. Committee discussed assessment data collected in HS 100 and HS401 this year. The committee also discussed our focuses for the upcoming year.

II. Closing the Loop/III. Examination of Data Collected for this year's targeted learning outcomes:

These sections will be presented together this year as the 2016 report was not formatted correctly.

Our focus for the 2016-2017 academic year was:

1. Revamping the HS major, as the premed, prevet, and prePT tracks cannot exist without articulation agreements. This was completed in Summer 2016 and approved by the faculty in September 2016. Students are required to take courses from several different disciplines (Bio, Chem, Psy, Math, Soc). The upper level electives require students to take electives in at least two different disciplines. The revised curriculum meets program goals and objectives.
2. Continued assessment of HS curriculum:
HS401: Determining if HS401 should be a Fall or Spring course/ should it span two semesters? Research in the Fall, writing or presentation in the Spring? This year, 16-17, HS401 was offered in the Spring and a sharing component added (see below). The course will work best as a Fall course, so a career planning aspect can be added to the course (the Spring semester would be too late for many program deadlines). The sharing component will be kept in the Spring and added as a part of the HS comps (rather than in HS401). See part IV Program Changes.

3. Continuing to discuss where we can add HS courses. Courses in medical ethics, nutrition, terminology are of special interest for students. LB offered an independent study in nutrition this spring. A course in nutrition would increase student's foundational knowledge in the HS, but current teaching loads do not allow for this to be developed as a new course. Projects and assignments on nutrition may be added into other courses.

4. In HS100, ~15 health care professional guest speakers from various fields describe their own professional and personal paths, job requirements, and interactions with others in providing healthcare services to others. The speaker series is designed to work towards student learning objectives 2.1-2.3 (see HS Assessment plan). **In order to facilitate more student engagement and connections with the speaker series, this year we had students submit summaries from each invited speaker's talk.** Cell phones and computers were also banned. These changes were implemented due to lack of student focus throughout the entirety of the talk in Spring 2016. Students often immediately "dismissed" speakers who were not in the student's chosen profession and missed valuable knowledge from a health care professional.
Assessment: 100% of students present in class turned in thorough and complete descriptions of each guest speaker's presentation, achieving our outcome. This method of "summary note taking" made students more focused throughout the presentations (no slouching or social media use) compared to the previous year. Students learned to act professionally and how to best represent themselves and Wells college. Additionally, students were able to use their speaker summaries to give more complete answers on their intended career piece on the HS100 final.

Measurement of learning outcomes table:

Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria
Goal #2. Provide guidance in health profession career exploration.				
2.1 Students understand the varieties and nature of various healthcare professions and assess the goodness-of-fit of these careers to their own personal and professional goals.	a. Describe the responsibilities of various health professions.	Written summaries of health professional speaker presentations in HS100	Locally developed rubrics	80% received C or higher

<p>2.2 Students understand how various health professionals work together as a team to provide a system of healthcare to the individual and the community.</p>	<p>a. Exposure to a wide variety of healthcare professionals who describe their own professional and personal paths, job requirements, and interactions with others in providing healthcare services to others</p> <p>b. Describe how various health professionals interact through written assignments and oral presentations.</p>	<p>Written summaries of health professional speaker presentations in HS100</p>	<p>Locally developed rubrics</p>	<p>80% received C or higher</p>
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5. Last year (Spring 2016) was the first time HS401 was taught and the course included only one student.

The change for this year was to include a sharing component between students in the course and to the Wells community. This was done through (1) peer reviews of theses and (2) presentations in

science colloquium or the joint HS/PSY thesis poster presentation.

Assessment: 66% of students received an A and 33% a B on their oral or poster presentation, making this outcome a success. Students professionally and thoughtfully conveyed their ideas and solutions to healthcare challenges to their peers and the Wells community. Students tremendously enjoyed presenting their work and gave students sense of satisfaction. One student said “I was nervous about talking about my ideas, but it went very well. The presentation made my work seem complete.”

Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria
<p>Goal 3. Train students to communicate in a clear, coherent, and effective manner in both written and oral form.</p>				
<p>3.2 Students demonstrate effective visual and oral communication to their peers, the Wells community, and</p>	<p>a. Present work visually and verbally in an oral presentation format that includes visual representations.</p>	<p>HS401 Senior Thesis presentation</p>	<p>Locally developed rubric</p>	<p>100% receive a C or higher</p>

the general public	b. Present work visually and orally via a poster presentation format.	HS401 Senior Thesis Poster presentation	Locally developed rubric	100% receive a C or higher
4.2 Students analyze and propose solutions to current and arising healthcare challenges	a. Write and present senior theses on healthcare topics	HS401 Senior Thesis Paper and Presentation	Locally developed rubrics	100% receive a C or above
6.2 Students will learn to work collaboratively.	b. Students provide constructive peer feedback on papers, projects, and presentations	HS401 Peer reviews of senior theses	Locally developed rubrics	100% received C or higher

6. To meet goal 5 “students learn new genetic technologies and understand their applications and ethics”, projects were added to Biol226L Genetics and Biol321L Molecular Biology.

Assessment: In Biol312 Molecular Biology, students learned a new method of genome editing called CRISPR and the ethical implications of genome editing were discussed. This was a research based project done in collaboration with Michelle Cilia Heck’s lab at the Boyce Thompson Institute at Cornell University. The research based aspect of this project turned out extremely well. The students responded very positively being a part of a larger research collaboration. Michelle gave a lecture on her work and how the student’s lab projects connected to her research lab. The questions students asked at the end of her talk prompted an interesting and interactive discussion. ~75% of students asked thoughtful questions at the end of her talk. This was a good percentage of the class, but 80% active participation in an upper level class would be considered successful.

Students engaged and connected with the project in a stronger way than “regular” course labs. This was mentioned multiple times by students and in course evaluations. 100% of the students fully participated in the research lab, attending each day. 100% passed on short lab question assignments. 100% passed on an exam given at the end of the lab project. Students explored the ethical aspects of CRISPR gene editing through discussion, where ~80% of the students participated fully. 100% of students thoughtfully discussed the ethical implications short answer on the exam. Thus, these aspects of the project was successful.

In Biol226L Genetics, students were introduced to the technique of RNAi and explored online bioinformatic technologies in lab. This project also had students learn to work with the model organism *C. elegans*. 100% of students were present to learn the techniques and technologies, and 100% of students passed the lab’s written questions. Although 100% of students passed, they were challenged by the bioinformatics exercise. It was clear that they were not completely clear on how

scientists use bioinformatics and the enormous amount of resources this technology provides. This portion of the lab needs a better introduction and perhaps to be broken down into smaller sections.

An essay on the ethics of using genome editing technologies to bring back extinct species (yes, this is being done!) was planned for Biol226L. This assignment was turned into extra credit due to lack of time near the end of the semester. For the assignment students watched a series of TED talks on genetic engineering and then wrote a 1-2 pages summary and reflection on one of the talks. I was impressed by how interested the students in this topic. Their essays were extremely thoughtful. 80% of the class turned in the extra credit assignment and many (~40%) were much longer than the required length. This outcome was a success and should be added as an assignment in the course.

Goal 5. Educate students to think critically and use quantitative reasoning in evaluating data, and to apply that skill to health issues and healthcare delivery in their local and global community, including ethical conflicts surrounding particular medical theories, technologies, applications, and policies.				
Objective	Outcome	How Outcome is Measured	Measurement Tool	Success Criteria
5.1 Students will develop an understanding for the ethical issues that surround particular technologies and applications	a. Consider the ethics of technologies by evaluating data and ideas presented in journal articles, case studies, and books.	Biol312L CRISPR Essay Question Response and CRISPR Discussion	Locally Developed Rubric	80% receive a C or above
		Biol226L Assignment on genome editing technologies	Locally Developed Rubric	70% receive a C or above
5.2 Students will learn new technologies and how they can be applied.	a. Complete post-lab questions lab reports, and presentations that are dependent on their understanding of the technology.	Biol226L Bioinformatics and RNAi lab and post lab	Answer Keys	70% receive a C or above
		Biol312L CRISPR lab	Answer Keys	80% receive a C or above
	b. Complete quizzes on the use and applications of the technologies.	Biol312L Lab Quiz	Locally Developed Rubric	80% receive a C or above

IV. Program Changes for the upcoming Year

Based on the assessed data above and HS faculty discussions, we propose the following changes:

1. Offer HS401 in the Fall. This would allow students who would like to continue with their thesis work and conduct primary research on the topic a chance to do so in the Spring. A career planning piece should be added to the course. Move the sharing component out of HS401 and make it part of the HS senior comprehensive. Students would present either in Science Colloquium or an a joint HS/PSY poster session.
2. Students will also submit a reflective essay as part of the HS individualized major senior comps. This essay will be used by HS faculty to assess if the program is meeting its goals and objective.
3. HS faculty will continue to revise the HS program goals, with a focus on goals 4-6 and their objectives. The goals cannot be currently changed due to the major being under revision by NYSED.
4. Additional measureable learning outcomes from across the HS curriculum (focus on PSY and Sociology) will be added to the HS assessment plan.
5. Objective 1.3 will be revised and measurable learning outcomes added.
6. In 18-19 the Introductory biology sequence will be changed. BIOL 130L will be offered in Fall and BIOL 114L changed to a 200-level course with BIOL 130L as a prereq. These changes are being made as students in BIOL 114L were not making appropriate progress due to the amount of material covered in Biol114L. Having Biol130L as a prerequisite will reduce the amount of material covered in Biol114L and allow students to have more successful learning outcomes. This change will be assessed in Spring 2019.

V. Action Plan for the Upcoming Year

1. The development of the questions for senior comprehensive reflective essay will be developed by HS faculty this fall.
2. Assessment of the senior thesis sharing component will be done in the Spring. HS faculty will determine if this change works effectively.
3. Assessment of an HS401 career planning component for those students without post-Wells plans. The assignment will be added to the measure outcomes table by the faculty member teaching HS401 this Fall.
4. HS faculty will work throughout the year on revising the assessment plan in regards to IV Program Changes points 3-5. As noted, some of changes cannot take place until NYSED has given feedback on the proposed HS major.