

## 2019-20 Program Assessment Report Biology-Health Sciences B.S.

### 1) Program Mission and Educational Objectives

#### **Mission:**

The Bachelor of Science program in Biological-Health Sciences (BHS) prepares undergraduate students for professional and graduate schools in the medical sciences (medicine, dentistry, pharmacy, veterinary sciences, physical therapy, physician assistant, etc.).

#### **Educational Objectives:**

- Provide an integrated foundation of knowledge in biological disciplines that includes morphological, cellular, molecular, physiological, developmental, and evolutionary principles.
- Train students to utilize the scientific method and develop skills in analysis, evaluation, and critical thinking. (as well as communication, team-building, and professionalism – may be added following more discussion).
- Prepare students for entrance into graduate schools and professional health schools, including preparation for national admissions examinations such as the Graduate Record Examination (GRE), Medical College Admission Test (MCAT), Dental School Admissions Test (DAT), and similar examinations, or qualify them for entry level positions in biology and health-related occupations.

### 2) Program Description and History

The Biology-Health Sciences program serves all OIT students wishing to major in a course of study that prepares for entry into professional programs in medicine, dentistry, pharmacy, veterinary medicine, physical therapy, physician assistant, optometry, and related health fields.

Biology-Health Sciences was implemented in 1996, and was originally called Health Sciences. The number of students graduating in past years when the program was called Health Sciences was 8 (1999-2000), 2 (2000-2001), 9 (2001-2002), 10 (2002-2003), 10 (2003-2004), 11 (2004-2005), 7 (2005-2006), 1 (2006-2007), 3 (2007-2008), 2 (2008-2009), 2 (2009-2010), 1 (2010-2011), 6 (2011-2012), 1 (2012-2013), and falling to 0 (2013-2014 and beyond).

Subsequently, the Biology program was implemented in 2006-2007 and removed from the catalog in 2012-2013. The number of students graduating in past years were 10 (2006-2007), 8 (2007-2008), 18 (2008-2009), 14 (2009-2010), 12 (2010-2011), 13 (2011-2012), 2 (2012-2013), 4 (2013-2014), 1 (2014-2015), 2 (2015-2016), and falling to 0 (2016-17 and beyond).

The current Biology-Health Sciences (BHS) program was established in 2012-2013. It has remained a popular program since, with an enrollment of approximately 150 or more students. Enrollment, Graduation, and Graduation Outcome figures are provided on the following page. Note that with respect to graduates, we have limited information regarding employment rates and salaries, as most students go on to graduate school and are not employed for two to four years while working on their graduate degrees. Many take a year off while applying to graduate schools, making follow up more difficult, and generally only a low percentage of students complete the exiting senior surveys.

### BSH Program Enrollment, 2015-2019.

In this five year period, the program has seen a 20% increase in enrollment (with some annual variation).

	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019
Biology-Health Sciences	138	151	148	162	165
<b>Klamath Falls</b>	<b>137</b>	<b>151</b>	<b>148</b>	<b>161</b>	<b>164</b>
Full-Time	110	127	128	132	134
Part-Time	27	24	20	29	30
<b>Online</b>				<b>1</b>	<b>1</b>
Part-Time				1	1
<b>Portland-Metro</b>	<b>1</b>				
Part-Time	1				

### BHS Program Graduates, 2014-15 to 2018-19.

In this five year period, while seeing significant annual variation, the BHS program has seen a graduation rate increase comparable to or exceeding the observed increase in enrollment. This speaks positively to our retention of students.

	201415	201516	201617	201718	201819
Biology-Health Sciences	20	18	28	18	26
Bachelor of Science					
<b>Klamath Falls</b>	<b>20</b>	<b>18</b>	<b>28</b>	<b>18</b>	<b>25</b>
<b>Online</b>					<b>1</b>

### BHS Program Graduate Outcomes, 2016-2019.

A significant number of our students continue to see success in employment and continuing education.

Oregon Tech Graduate Outcome Data													
a=2016 / 2017 / 2018 combined	% Employed		% Continuing Ed		% Seeking		% Not Seeking		Success Rate		Median Salary		
b=2017 / 2018 / 2019 combined	a	b	a	b	a	b	a	b	a	b	a	b	
Biology-Health Sciences (BS)	50	52	47	39	0	7	3	2	100	93	\$ 35,000	\$ 33,250	

### 3) Program Student Learning Outcomes

Graduates of our program will:

- 1) Demonstrate **scientific knowledge and understanding.**
  - a. Demonstrate foundational knowledge in the natural sciences (e.g., terminology, organization, classifications, appropriate use of units, methodologies, and fundamental principles).
  - b. Apply scientific principles to biological and medical examples/contexts.
- 2) Be proficient in **scientific reasoning and critical thinking.**
  - a. Analyze data to determine its relationship to principles, and evaluate the data for errors.
  - b. Analyze and evaluate content in biology.
- 3) Be able to effectively find and use resources from the **literature.**
- 4) Demonstrate effective **oral, written and visual communication.**
- 5) Demonstrate **mathematical knowledge and skills** in the biological sciences.

**4) Curriculum map of departmental courses, with PSLOs at Foundational (F), Practicing (P), and Capstone (C) levels**

	PSLO 1	PSLO 2	PSLO 3	PSLO 4	PSLO 5
<b>FRESHMAN YEAR</b>					
<a href="#">BIO 109 - Intro to Medical Sciences Credit Hours: 2</a>			F	F	
<a href="#">BIO 211 - Principles of Biology Credit Hours: 4</a>	F	F			
<a href="#">BIO 212 - Principles of Biology Credit Hours: 4</a>	F	F			
<a href="#">BIO 213 - Principles of Biology Credit Hours: 4</a>	F	F			
<b>SOPHOMORE YEAR</b>					
<a href="#">BIO 209 - Current Research Tpc Med Sci I Credit Hours: 1</a>		F	F	F	
<a href="#">BIO 345 - Medical Microbiology Credit Hours: 5</a>	P	P			
<a href="#">CHE 221 - General Chemistry I Credit Hours: 5</a>	F	F			F
<a href="#">CHE 222 - General Chemistry II Credit Hours: 5</a>	F	F			F
<a href="#">CHE 223 - General Chemistry III Credit Hours: 5</a>	F	F			F
<b>JUNIOR YEAR</b>					
<a href="#">BIO 331 - Human Anatomy/Physiology I Credit Hours: 5</a>	P	P			
<a href="#">BIO 332 - Human Anatomy/Physiology II Credit Hours: 5</a>	P	P			
<a href="#">BIO 333 - Human Anatomy/Physiology III Credit Hours: 5</a>	P	P			
<a href="#">CHE 331 - Organic Chemistry I Credit Hours: 4</a>	P	P			P
<a href="#">CHE 332 - Organic Chemistry II Credit Hours: 4</a>	P	P			P
<a href="#">CHE 333 - Organic Chemistry III Credit Hours: 4</a>	P	P	P	P	P
<a href="#">PHY 221 - General Physics w/Calculus Credit Hours: 4 d</a>	F	P			P
<a href="#">PHY 222 - General Physics w/Calculus Credit Hours: 4 d</a>	F	P			P
<a href="#">PHY 223 - General Physics w/Calculus Credit Hours: 4 d</a>	F	P			P
<b>SENIOR YEAR</b>					
<a href="#">BIO 346 - Pathophysiology I Credit Hours: 3</a>	C	C			
<a href="#">BIO 409 - Crnt Rsch Tpcs in Med Sci II Credit Hours: 2</a>		C	C	C	
<a href="#">CHE 450 - Biochemistry I Credit Hours: 4</a>	C	C			C
<a href="#">CHE 451 - Biochemistry II Credit Hours: 4</a>	C	C			C
<b>Health Biology Electives (lower-division):</b>					
<a href="#">BIO 200 - Medical Terminology Credit Hours: 2</a>	F	F			
<a href="#">BIO 205 - Nutrition Credit Hours: 3</a>	F	F	P	P	
<a href="#">BIO 216 - Intro to Veterinary Medicine Credit Hours: 4</a>	F	F			
<a href="#">BIO 226 - Intro to Wildlife Rehab Credit Hours: 3</a>	F	F			
<b>Health Biology Electives (upper-division):</b>					
<a href="#">BIO 326 - Parasitology Credit Hours: 4</a>	P	P			
<a href="#">BIO 341 - Medical Genetics Credit Hours: 3</a>	P	P	P	P	
<a href="#">BIO 342 - Cell Biology Credit Hours: 4</a>	P	P			
<a href="#">BIO 347 - Pathophysiology II Credit Hours: 3</a>	P	P			
<a href="#">BIO 352 - Developmental Biology Credit Hours: 4</a>	P	P			
<a href="#">BIO 357 - Intro to Neuroscience Credit Hours: 3</a>	P	P	P	P	
<a href="#">BIO 426 - Evolutionary Biology Credit Hours: 3</a>	P	P			
<a href="#">BIO 435 - Exercise Physiology Credit Hours: 3</a>	P	P			
<a href="#">BIO 436 - Immunology Credit Hours: 4</a>	P	P			
<a href="#">BIO 461 - Human Cadaver Dissection Credit Hours: 1</a>	C	C			
<a href="#">BIO 462 - Human Cadaver Dissection Credit Hours: 1</a>	C	C			
<a href="#">BIO 495 - Research Project in Biology Credit Hours: Varies (1-4)</a>		C	C	C	C
<a href="#">CHE 360 - Clinical Pharmacology/Hlth Prf Credit Hours: 3</a>	P	P			
<a href="#">CHE 452 - Biochemistry III Credit Hours: 4</a>	C	C			C
<a href="#">CHE 495 - Research Project in Chemistry Credit Hours: Varies (1-4)</a>		C	C	C	C
<a href="#">STAT 414 - Stat Methods in Epidemiology Credit Hours: 4</a>	P	P			

## 5) Assessment Cycles

Program assessment cycle and alignment with OIT ESLO "Collect" years:

<u>AY</u>	<u>OIT ESLO:</u>	<u>BHS PSLO collect:</u>
16-17	Communication	(1) Knowledge and Understanding, (4) Communication
17-18	Inquiry & Analysis	(5) Mathematical knowledge and skills
18-19	Ethical Reasoning	(2) Scientific reasoning/critical thinking, (3) Literature
19-20	Teamwork	(1) Knowledge and Understanding, (4) Communication

Program assessment courses often targeted for data collection:

<u>PSLO:</u>	<u>Sample course(s)</u>
1) Scientific knowledge and understanding	BIO 211/212/213
2) Scientific reasoning and critical thinking	BIO 409
3) Finding and using literature resources	BIO 409
4) Oral, written, and visual communication	BIO 409
5) Mathematical knowledge and skills	CHE 223, CHE 450

## 6) Assessment Activities and Results

Data for the campus-wide Teamwork ESLO was collected in Dr. Yang's PHY 222 physics labs. We discussed these results (documented in the Oregon Tech Teamwork Assessment Report, **Appendix A**), and concurred with the Teamwork Committee's findings. Our additional comments are documented in **Appendix B**.

Data collection and analysis for our PSLOs was disrupted by the COVID-19 pandemic and was not available at the time of writing of this report.

Student exit survey results were positive (see **Appendix C** for the results from the BHS-specific questions) and after discussion we saw no need for action at this time.

# Appendix A: OREGON TECH 2019-2020 TEAMWORK ASSESSMENT REPORT

Teamwork Committee: Trevor Petersen, Josie  
Hudspeth, Kevin Brown, Don Lee, Don  
McDonnell

# STUDENT SURVEY RESULTS

- ▶ 19-question Qualtrics survey
- ▶ Designed by creating questions based on the Teamwork Rubric
  - ▶ Questions regarding all 7 domains of effective teamwork were present
    - ▶ Identify and achieve goal/purpose, assume roles and responsibilities, communicate effectively, reconcile disagreement, contribute appropriately, develop strategies for effective action, adjust for differences)
- ▶ A scale from (1) “Strongly Disagree” to (4) “Strongly Agree” or N/A was used, with descriptions for each
- ▶ Students rated how their team functioned in each domain
- ▶ Administered in classes with team projects
- ▶ Administered during fall, winter, & spring terms of 2019-2020
- ▶ 412 students participated
- ▶ N/A responses were eliminated from the results

# STUDENT SURVEY RESULTS

## Answer Key

- ▶ Please select which level best represents how your group functioned over the time you worked together.
- ▶ 1) Strongly Disagree: Your group rarely achieved objectives in this area, and usually the group struggled. Regular instructor support was needed.
- ▶ 2) Disagree: Your group sometimes achieved objectives in this area, but often had times when they did not.
- ▶ 3) Agree: Your group usually achieved objectives in this area, but occasionally had times when they do not.
- ▶ 4) Strongly Agree: Your group almost always achieved objectives in this area. No instructor support was needed.
- ▶ N/A: Please only use not applicable if there was no way to assess your group in the given performance area.

Question	Mean	SD	n
1) Realistic, prioritized and measurable goals were agreed upon and documented by your group.	3.55	.58	381
2) All team members shared a common objective/purpose and group achieved goal.	3.57	.63	386
3) Members consistently and effectively fulfilled roles and responsibilities.	3.37	.74	382
4) Leadership roles were clearly defined and/or shared.	3.33	.70	380
5) Members moved team toward the goal by giving and seeking information or opinions, and assessing ideas and arguments critically.	3.47	.64	381
6) Members were all self-motivated and completed assignments on time.	3.41	.69	382
7) Most members attended all meetings.	3.53	.64	373
8) Members reflected on group processes, provided feedback to other group members and made changes as necessary.	3.38	.73	379
9) Members were motivated and assignments were completed in a timely manner.	3.46	.66	383
10) All members contributed significantly to discussions, decision making, and work.	3.32	.82	384
11) Members supported and encouraged each other, and communication patterns encouraged a positive environment that motivated the team and built unity and trust.	3.43	.72	375
12) All members welcomed disagreement and used difference to improve decisions (without just voting).	3.35	.64	377
13) All members respected and accepted disagreements and employed effective conflict resolution skills.	3.42	.64	374
14) Subgroups were absent.	3.26	.84	276
15) The work product was a combined coordinated effort; team members had both individual and mutual accountability for the successful completion of a work product with even quality throughout.	3.40	.72	383
16) Members used effective decision making processes to decide on action.	3.44	.60	381
17) Group shared a clear set of norms and expectations for results.	3.45	.68	380
18) Group reached consensus on decisions and produced detailed plans for actions.	3.47	.61	376
19) Members always recognized and adapted to differences in the background and communication style of other group members.	3.47	.62	374



# INSTRUCTOR SURVEY RESULTS

- ▶ 19-question Qualtrics survey
- ▶ Designed by creating questions based on the Teamwork Rubric
  - ▶ Questions regarding all 7 domains of effective teamwork were present
    - ▶ Identify and achieve goal/purpose, assume roles and responsibilities, communicate effectively, reconcile disagreement, contribute appropriately, develop strategies for effective action, adjust for differences)
- ▶ A scale from (1) “Low Proficiency” to (4) “Highly Proficient” or N/A was used, with descriptions for each
- ▶ Instructors rated each team in their classes separately
- ▶ Administered in classes with team projects
- ▶ Administered during fall, winter, & spring terms of 2019-2020
- ▶ Data collected from 21 different classes
- ▶ N/A responses were eliminated from the results

# INSTRUCTOR SURVEY RESULTS

## Answer Key

- ▶ Please select which level best represents how the group functioned over the time they worked together.
- ▶ 1) Low Proficiency: Group rarely achieved objectives in this area, and usually the group struggled. Regular instructor support was needed.
- ▶ 2) Somewhat Proficient: Group sometimes achieved objectives in this area, but often had times when they did not.
- ▶ 3) Proficient: Group usually achieved objectives in this area, but occasionally had times when they do not.
- ▶ 4) Highly Proficient: Group almost always achieved objectives in this area. No instructor support was needed.
- ▶ N/A: Please only use not applicable if there was no way to assess the group in the given performance area.

Question	Mean	SD	n
1) Realistic, prioritized and measurable goals were agreed upon and documented by your group.	3.38	.80	76
2) All team members shared a common objective/purpose and group achieved goal.	3.44	.61	64
3) Members consistently and effectively fulfilled roles and responsibilities.	3.22	.71	64
4) Leadership roles were clearly defined and/or shared.	3.56	.57	52
5) Members moved team toward the goal by giving and seeking information or opinions, and assessing ideas and arguments critically.	3.35	.68	64
6) Members were all self-motivated and completed assignments on time.	3.35	.62	63
7) Most members attended all meetings.	3.48	.66	64
8) Members reflected on group processes, provided feedback to other group members and made changes as necessary.	3.42	.67	64
9) Members were motivated and assignments were completed in a timely manner.	3.31	.83	64
10) All members contributed significantly to discussions, decision making, and work.	3.31	.61	64
11) Members supported and encouraged each other, and communication patterns encouraged a positive environment that motivated the team and built unity and trust.	3.45	.58	64
12) All members welcomed disagreement and used difference to improve decisions (without just voting).	3.41	.71	59
13) All members respected and accepted disagreements and employed effective conflict resolution skills.	3.37	.73	64
14) Subgroups were absent.	3.45	.62	45
15) The work product was a combined coordinated effort; team members had both individual and mutual accountability for the successful completion of a work product with even quality throughout.	3.35	.60	62
16) Members used effective decision making processes to decide on action.	3.37	.77	63
17) Group shared a clear set of norms and expectations for results.	3.28	.81	64
18) Group reached consensus on decisions and produced detailed plans for actions.	3.38	.60	65
19) Members always recognized and adapted to differences in the background and communication style of other group members.	3.45	.68	64

# COMMON STRENGTHS AND WEAKNESSES BETWEEN STUDENT AND INSTRUCTOR SURVEYS

## ▶ Strengths:

- ▶ 7) Most members attended all meetings.
- ▶ 19) Members always recognized and adapted to differences in the background and communication style of other group members.

## ▶ Weaknesses:

- ▶ 10) All members contributed significantly to discussions, decision making, and work.

# FOCUS GROUP RESULTS

- ▶ What we learned from this qualitative data:
  - ▶ *There is considerable variance between classes*
    - ▶ *regarding how students groups are formed (e.g., self-selected, randomly, based on personality characteristics, based on knowledge/skill level, based on convenience),*
    - ▶ *how much structure and support/intervention is provided by the instructor (little vs. providing team charter template, team member initiation template, meeting agenda/minutes template, etc.),*
    - ▶ *sizes of groups,*
    - ▶ *length of group membership (weeks to years),*
    - ▶ *how groups are assessed (e.g., self-assessment, by their peers, by the instructor, by their final product, or by a combination of these),*
    - ▶ *and whether dismissal from a group is possible and how.*


# FOCUS GROUP RESULTS

- ▶ From trends in this qualitative data, the following strengths were identified:
  - ▶ *Delegation skills*
  - ▶ *Conflict resolution skills*
  - ▶ *Ability to compromise*
  - ▶ *Leadership skills*
  - ▶ *Organizational skills*
  - ▶ *Peer camaraderie and support*

# FOCUS GROUP RESULTS

- ▶ From trends in the qualitative data, the following weaknesses were identified:
  - ▶ *Individualistic pursuits instead of focus on team goal*
  - ▶ *Each taking on a different part of the project and working on it individually/separately instead of working together*
  - ▶ *Lack of cohesion of final product*
  - ▶ *Taking group differences personally*
  - ▶ *Inconsistent effort across time by group members*
  - ▶ *Certain group members take over group and do most of work*
  - ▶ *Certain group members engaging in social loafing*

# REFLECTION QUESTIONS

- ▶ Do you provide instruction on effective teamwork skills?
  - ▶ Do you review the Oregon Tech Teamwork Rubric with you students?
  - ▶ Do you provide clear expectations?
  - ▶ Are you intentional about how you form groups (e.g., self-selected, randomly, based on personality characteristics, based knowledge/skill level, or just based on convenience)?
  - ▶ Do you have a rationale for the size of groups you form?
  - ▶ Do you have teams work together for a long enough period of time to work through team stages (e.g., for the entire term or just for a week)?
  - ▶ Do you provide the level of structure and support your students need based on their level of training and experience (e.g., little involvement or providing team charter template, team member initiation template, meeting agendas, etc.)?
  - ▶ Do you assess teamwork in a variety of ways (e.g., self-assessment, peer assessment, direct observation, or just by their final product)?
- 



# AREAS FOR IMPROVEMENT

- ▶ Being more intentional about providing teamwork instruction, expectations, reviewing the Teamwork Rubric, how groups are formed, size of groups, duration of group work, level of structure/support, and assessing teamwork in a variety of ways.
- ▶ We can also strive to further help students improve in the following areas:
  - ▶ Students more consistently and effectively fulfilling roles and responsibilities.
  - ▶ Having leadership roles more clearly defined and/or shared.
  - ▶ All members contributing more substantially to discussions, decision making, and work.
  - ▶ All members being more welcoming to disagreement and using this difference to improve decisions (without just voting).
  - ▶ Reducing subgroups.
  - ▶ Members being more motivated and completing assignments in a timely manner.
  - ▶ Groups sharing a clearer set of norms and expectations for results.

# AREAS FOR IMPROVEMENT

- ▶ We can also strive to further help students improve in the following areas:
  - ▶ *Focusing more on team goals instead of individualistic pursuits*
  - ▶ *Working more interdependently instead of each student just taking on a different part of the project and working on it individually/separately*
  - ▶ *Improving cohesion of final product*
  - ▶ *Not taking group differences personally*
  - ▶ *Students providing more consistent effort across time*
  - ▶ *Preventing a group member from taking over a group and doing most of the work alone*
  - ▶ *Reducing engagement in social loafing by group members*

# Appendix B:

## BHS Program Teamwork Assessment reflections

*(Notes by Jordan Blacktop reflecting the departmental conversation during fall 2020.)*

### **Faculty Reflection on Assessment Results:**

- What surprises you about this data? I am surprised that the student survey scored as consistently high as it did (3.2-3.6) how little the difference was between a low and high score on a ranking of 1-4.

What does not surprise you? I am not surprised that the teacher survey and student survey has similar patterns and scores.

- What does this data reveal about our students' strengths? What does it reveal about our students' weaknesses? To me it reveals that group activity and teamwork is an overall inherent strength. It also reveals that a weakness may be equal contribution and team role clarity within a team. Leader vs. herd mentality.

### **Reflection on Curriculum:**

- How can we as a department better support teamwork skills in our OIT students across all courses?

Prioritize cohesion as an important skill for the student body.

What are your ideas? Implement group projects where cohesiveness skills are implemented.

- What refinements to our academic curricula would help support these outcomes better? Assign task and social cohesion assignments/projects.

- What are your ideas for strengthening teamwork in your own courses in response to this data?

Facilitating group cohesion in laboratories through tasks dependent on skilled communication through teamwork. This will be much easier in certain classes than others (i.e. labs versus foundational lecture classes).

What support would help you to do so? Access to collaborative game software; ex. Bluescape, Drawp for School.

### **Reflection on Assessment Process:**

- Does our definition of this outcome adequately describe the knowledge and skills students need to succeed immediately post-graduation and over the course of their career (5, 10, 15 years after graduation)? They will need more skills than just teamwork, although this is a critical and often many times underrepresented skill.

- Does the way we assess the outcomes (courses, assignments, scoring, etc.) capture evidence of whether students are achieving these outcomes? A self-reporting Teamwork rubric scale although useful, I believe the evidence is the similarity between both the teachers and the students. This transcends self-report bias.

However, conformity, expectation, and intent are inherently hard to parse out. There are arguments that this form is either direct or indirect evidence and that work on equal contribution should be prioritized.

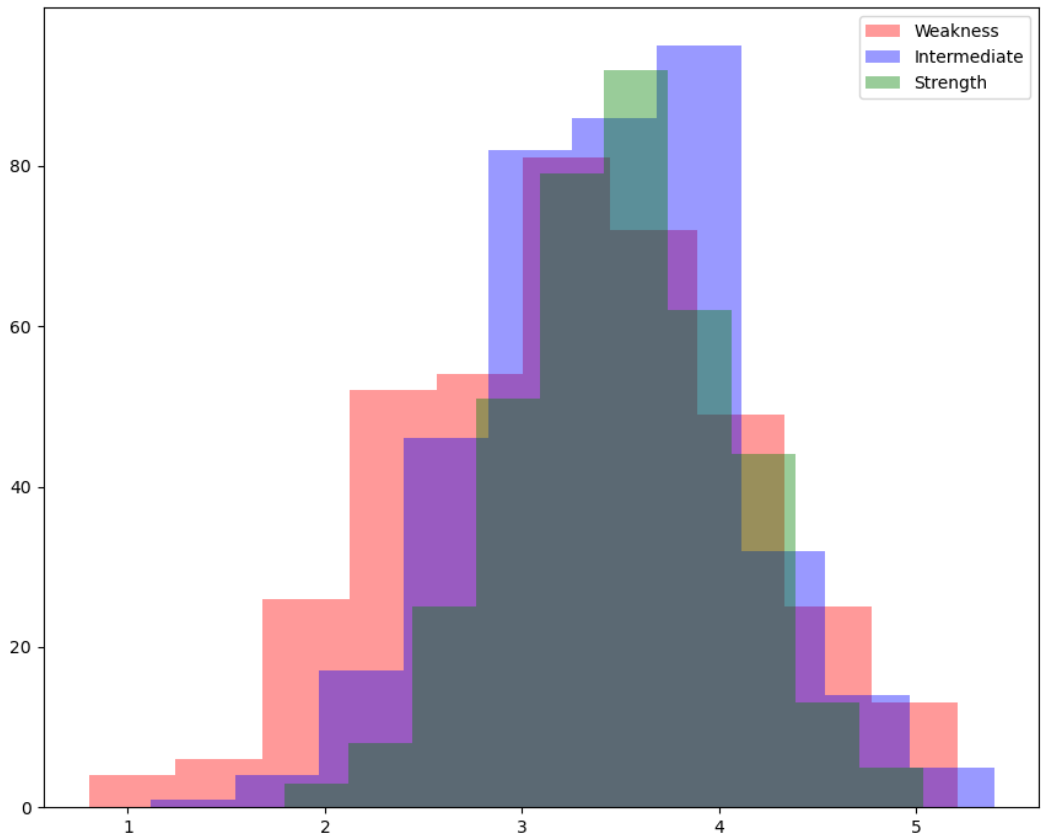
*(Notes by Jesse Kinder reflecting the departmental conversation during fall 2020.)*

**Faculty Reflection on Assessment Results:**

*- What surprises you about this data? What does not surprise you?*

The data set itself surprises me. The averages in every category were quite consistent among faculty and students, and the standard deviations were significant. Although some items are highlighted in different colors, there is no statistically significant difference between any of the questions.

This is a plot of N=382 random numbers with the means and standard deviations given in the tables for a "strength" (3.57), "weakness" (3.26), and "intermediate" (3.46) rating of an item from the survey:



Drawing conclusions and making changes to the curriculum based on such data seems misguided.

*- What does this data reveal about our students' strengths? What does it reveal about our students' weaknesses?*

It reveals that faculty and students assess their teamwork skills and experience the same way. Either no one knows how to assess this in a meaningful way, or everyone is proficient.

**Reflection on Curriculum:**

*- How can we as a department better support teamwork skills in our OIT students across all courses? What are your ideas?*

Small groups arise naturally in labs. The first day of lab would be a great opportunity to discuss teamwork. We could be more intentional in forming groups, too. I just let students who sit near each other work together.

*- What refinements to our academic curricula would help support these outcomes better?*

Having students take small group and team communication earlier in the OIT curriculum would help. It is a 300-level course, I think. If students were exposed to the elements of teamwork earlier in their time at OIT, it would be easier for instructors in all disciplines to draw upon this common knowledge in forming and managing small groups and teams.

More team assignments would reinforce the importance of teamwork. Team projects, team quizzes, team exams, team reports, team presentations, etc. If teamwork really matters, we can't make students' grades solely dependent on individual performance.

*- What are your ideas for strengthening teamwork in your own courses in response to this data? What support would help you to do so?*

I don't see that much strengthening is needed. Professors and students rated everything between proficient and excellent. 3.4/4 is an 85/100.

I may introduce the teamwork rubric on the first day of lab (when COVID has subsided and students can actually work in teams). I may also design some team assignments in introductory courses. Then again, I am not sure I want to deal with dysfunctional teams on top of the regular workload of 80+ students in lecture and 60+ students in lab each term.

#### **Reflection on Assessment Process:**

*- Does our definition of this outcome adequately describe the knowledge and skills students need to succeed immediately post-graduation and over the course of their career (5, 10, 15 years after graduation)?*

The definition seems quite good. Working effectively in small groups, resolving conflicts, and taking leadership roles will serve anyone well throughout their career.

*- Does the way we assess the outcomes (courses, assignments, scoring, etc.) capture evidence of whether students are achieving these outcomes?*

I appreciate the many questions and the attempt at statistical analysis, but the results suggest respondents did not really know how to assess these different aspects of teamwork. It seems like they substituted the simpler question, "How do you feel about your teamwork experience?" for all of them. The answer? "Pretty good."

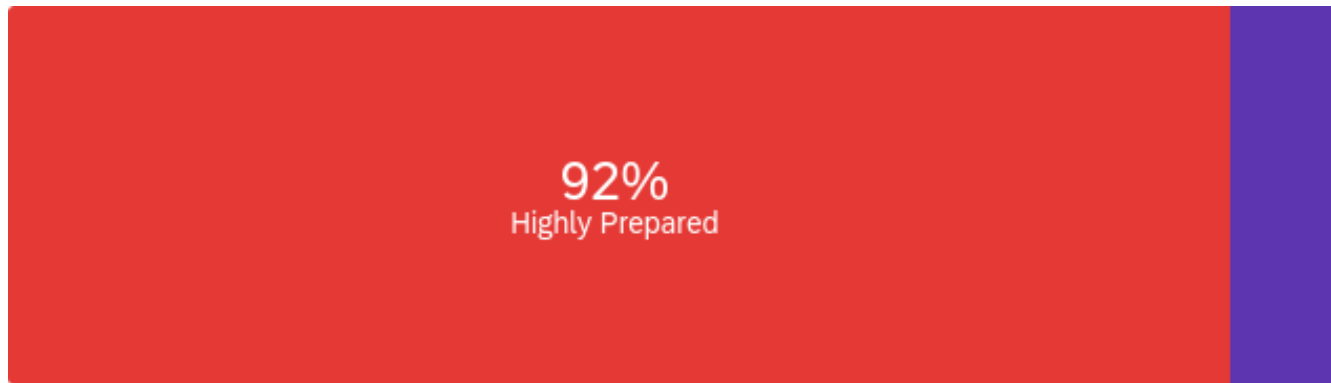
I think we need a different way of assessing teamwork. Maybe watch videos of students working in teams and identify what they do well or poorly? Maybe have them describe their teamwork experience in an essay and look for words and phrases that tie in to our objectives in positive or negative ways? It seems like faculty and students don't really know how to assess this, so some indirect method of assessment is required. Or maybe everyone really is doing fine at everything, on average ...

## Appendix C

# Program Report: BBHS – Biology Health Science B.S.

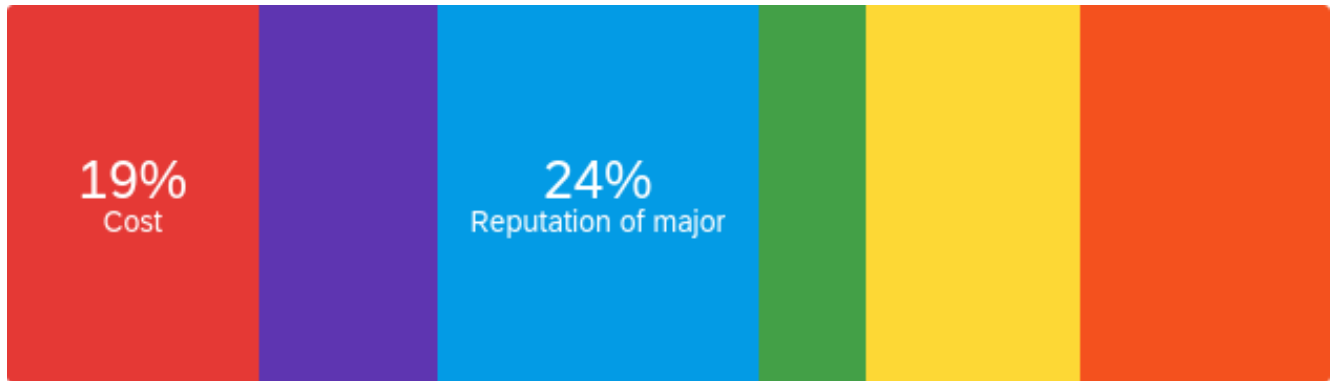
*(2019-20) Student Exit Survey*

**Q BBHS 1 - Program Student Learning Outcomes for Biology-Health Sciences B.S. Please indicate how well the Biology-Health Sciences program prepared you in the following areas.**



■ Highly Prepared   ■ Prepared   ■ Somewhat Prepared   ■ Inadequately Prepared

Q BBHS 2 - What attracted you to Oregon Tech? Please check all that apply.



■ Cost   ■ Location   ■ Reputation of major   ■ Financial aid package

■ Successful employment rates   ■ If other, please specify:

Small class sizes and being able to work on cadavers as an undergrad

Mrs. McClure helped convince me OIT was the perfect place for me and she was SO right

Cadaver dissection available to undergrads

Getting hands on experience with cadavers as an undergrad!

I was offered an athletic scholarship

The wonderful Faculty

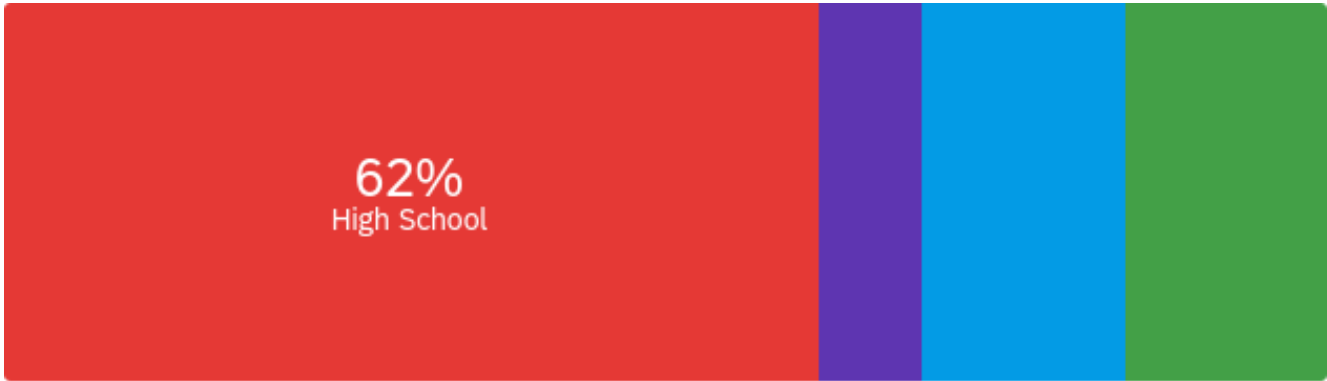
Playing for sports team

Q BBHS 3 - Was Biology-Health Sciences your first choice of major?



■ Yes   ■ If not, what was your first choice of major?

Q BBHS 4 - At what stage in your studies did you choose your major?



■ High School   ■ Freshman year in college   ■ Sophomore year in college  
■ Junior year in college or later



## Q BBHS 6 - What are one or two specific things we could do to improve the Biology-Health Sciences major?

Add more classes recommended for future PT students like Exercise Physiology

Bridge students to the hospital to help with shadowing and volunteering. Update some of the classrooms and labs

The academic advisors did not help very much. We picked our own classes and the advisors did not know much about the careers/graduate schools we wanted to get into. This prevented them from guiding us toward good classes to take, where to volunteer, and/or what jobs would be beneficial for our future.

Require only one semester of Physics

I feel the way the course schedule is laid out does not really make sense, and basically sets you up to struggle a lot your junior year specifically. I know this may not be possible due to the number of students who would take it, but more biology focused physics would have been very helpful. Also, building more relationships with doctors in town and Sky Lakes would have been very helpful as it was very hard for me to find any shadowing experiences.

I would suggest allowing for a student club space or work space because all other majors has a designated space for their majors except Bio-Health students. It is very impressive how other majors unite during junior/senior years working in labs and collaborating, and quite frankly the Bio-Health program has no concept of this whatsoever EXCEPT during Anatomy and Physiology with Dr. Li. Even this year, we were removed from studying in that lab and it really created some negative vibes among some students.

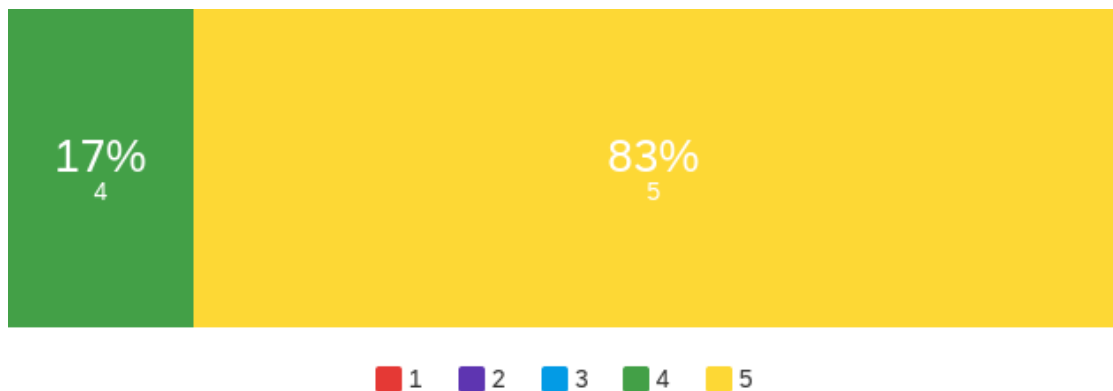
-There are some programs ie <https://medicine.uic.edu/gppa/> that have some direct admissions program...maybe Western or rural OHSU

-Virology Minor

One thing that can be done to improve the Biology-Health Sciences major would be to include a course that would help prepare students for the MCAT and/or other post-undergrad exams. I know from my experience many of my peers looked at furthering their education whether it be medical school, physicians assistant school, or pharmacy.

I would make a change to the order of when we are supposed to take classes. I think it is possible to do General Chemistry along with Principles of Biology during our freshmen year. This would allow student to take organic chemistry our sophomore year and lighten the worked load our junior year. This could also be adjusted by moving physics to another years classes.

## Q BBHS 8 - What is your overall rating of the quality of education you received?



## Q BBHS 9 - Do you have any other comments about your time at Oregon Tech?

Overall it's been a great experience and I wouldn't have wanted to get my undergrad anywhere else

If you could pass the message to future students to introduce themselves to the professors the first week of the term in person. It will help build relationships and make class much more comfortable. This will also help you feel like you aren't alone if it is your first year in college. And this is coming from a shy person!

I love this school! Bio-Health Science is a great major. Would love if the Bio-Health Science Club had more support from faculty so it can grow into an even bigger, more successful club in the future.

The professors at this school are incredible and I am incredibly grateful to have had all the opportunities they offered. They are all so willing to help and are truly driven to provide the students a good learning experience.

Also, the culture within many of the majors is wonderful and most students are very supportive of each other.

Paying for a gym we cannot use was very frustrating this year. (I'm not talking in regards to COVID, I mean Fall and Winter term)

Professors are the best I've ever witnessed at a university! NEVER ever have I had professors so willing to teach and share their experiences with students. OIT professors are another breed, and thank goodness!

I want to thank Dr. Usher, Professor McClure, Dr. Li, Dr. Gandhi, Dr. Lund, and the other Faculty that have been there for me.

I had a wonderful experience in the bio-health sciences and I am truly grateful for the opportunities that I received here at Oregon Tech.

Make a physics course that is for medical students. The physics course that the Bio-Health Science majors has to take focus a lot on engineering concepts and ideas. I have even mentioned adding in medical information when teaching on the course evaluations for the professors, but did not see changes during the following terms. I found it very pointless and just a course we were forced to take rather than something I can use in my future.