B.S. Health Informatics
Oregon Tech Assessment Report
2018-19

Program Description and History

Prior to Fall 2015 the Management department offered a degree in Information Technology – Option in Health Informatics. As of Fall 2015 new students are being transitioned into the B.S. of Health Informatics. The B.S. Health Informatics was first offered at Oregon Tech in 2015. The data within this report summarizes assessment activities for both the Information Technology – Health Informatics Option and the B.S. Health Informatics degrees.

The Health Informatics undergraduate program, the first of its kind in the Oregon University System, is an option within the Department of Information Technology at Oregon Tech. Health Informatics prepares students for a career as information and computing specialists in the health care field. The Health Informatics program gives students a strong background in business management, information systems, computing science and health care providing students with the necessary knowledge and skills in the field of health informatics.

Health informatics professionals work in operational and management positions throughout the health care industry in such locales as hospitals, clinics, managed care organizations, software vendors and government agencies. The Health Informatics program was awarded accreditation by the International Accreditation Council for Business Education (IACBE) in 2008 and was awarded reaffirmation of accreditation in 2015.

Program Highlights

Program Enrollment, Graduation and Employment Rates

Total enrollment across all campuses is approximately 37 students; 5 at the Klamath Falls campus, 18 in Wilsonville, and 14 online. The program graduated 5 students for 2018. The three-year annual starting salaries averaged $52,000. The program has a 100% success rate (within six months of graduation students are employed or in graduate school).

Industry Relationships

Industry relationships for the Health Informatics degree program in the 2018-19 assessment period increased in both depth and breadth. These relationships translate to internships, senior project opportunities, and job offers after graduation. The growing list of industry partners that demonstrate interest in Health Informatics students and graduating seniors include:

- Klamath Basin Behavioral Health
- Cascade Comprehensive Care
- Cascade Health Alliance
- Sky Lakes Medical Center
- Klamath Health Partnership, Inc.
- Salem Health
- Providence Health System
- Kaiser Permanente
- Peace Health
- Mosaic Medical Center
- Tucker Gailis Dental

This group represents tremendous potential for students to engage with industry as both students and alumni.

Student Learning Experiences
The following are examples of student learning experiences in Health Informatics:
- Health Informatics and Health Care Management Students created a model to aid Klamath Basin Behavioral Health in identifying and separating Direct vs Indirect costs. Costs were broken up into service arrays to provide a cost of service for delivering care for the specific program.
- Tristan Shea, 2019 graduate created a data mining and web scraping application for Tucker Gailis Dental to locate lowest cost options of supplies for the practice.
- Danielle Sherman, 2019 graduate created a GIS map illustrating provider network opportunities for patients on the Oregon Health Plan. This project was created for Cascade Health Alliance.

Success Stories
Health Informatics students speak highly of the courses they take as evidenced by course evaluations, but many students also comment on the tremendous learning experiences provided through their internships and senior projects. In addition, Health Informatics has a 100% success rate. Below are two such experiences shared by students via the student exit survey over this assessment period.

 "I really liked the hands-on experiences, the technical classes required, and real-world scenarios presented."

"The program is an affective combination of different courses such as business, IT and medical."

Program Purpose
Bachelor of Science in Health Informatics Mission
The Health Informatics degree fully prepares students to assume positions in information technology departments to enhance quality and operations for the health industry.

Educational Objectives
1. The Health Informatics degree program prepares students to interpret health policy and systems, with the ability to integrate policies into the healthcare agency.
2. The Health Informatics program prepares students to analyze, design and develop information systems that enhance operational efficiencies and strategic goals of the organization.
3. The Health Informatics program prepares students to analyze data and utilize analytic technologies to improve the organization's efficiencies and operational effectiveness.

Management Department Student Learning Outcomes (SLO)
The Health Informatics degree consists of the five core Management Department student learning outcomes. Upon completion of this program, Health Informatics graduates will be able to:
1. Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management.
2. Describe the legal, social, ethical, and economic environments of business in a global context.
3. Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.
4. Demonstrate professional communication and behavior.
5. Apply knowledge of business concepts and functions in an integrated manner.

Program Student Learning Outcomes (PSLO)
Upon completion of this program, Health Informatics graduates will be able to:
1. Interpret health policy and systems
2. Design and implement information systems
3. Apply knowledge of statistical concepts to analyze data (will assess starting in 2019-20)

Assessment Cycle

    Assessment Schedule
1. **Oregon Tech's Essential Student Learning Outcomes:** ESLOs are assessed on a six-year cycle. The ESLO assessment schedule may be found on the Oregon Tech website under Essential Student Learning Outcomes.

2. **Department Level Student Learning Outcomes**: IACBE requires all accredited institutions to complete a Public Disclosure of Student Achievement on an annual basis. In addition, all outcomes are assessed annually, with the full self-study for IACBE core student learning outcomes (Core SLOs 1-5) completed every seven years.

Outcomes:	Direct	Indirect
Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management.	• Case Study • Senior Project	• Senior Exit Survey
Describe the legal, social, ethical, and economic environments of business in a global context.	• Case Study • Senior Project	• Senior Exit Survey
Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.	• Case Study • Senior Project	• Senior Exit Survey
Demonstrate professional communication and behavior.	• Case Study • Senior Project	• Senior Exit Survey
Apply knowledge of business concepts and functions in an integrated manner.	• Case Study • Senior Project	• Senior Exit survey

Program Student Learning Outcomes: Program Based Annual Assessment Schedule and Activity

Outcomes:	Direct	Indirect
Interpret health policy and systems	• Senior Project • Community project	• Senior Exit Survey
Design and implement information systems	• Senior Project • Systems Design Project	• Senior Exit Survey

Evidence of Improvement in Student Learning

1. **Department Level Student Learning Outcomes, Activities and Results**

Management Department			
Program Outcomes	**Minimal Acceptable Performance**	**Assessment** from 2017-18	**Results** from 2017-18
Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management.	80% achieve a rate of 3 or 4	Senior Project N=64	86%
	80% achieve a rate of 3 or 4	Case Study N=82	86.5%
	80% score 4, 5, or 6	Senior Exit Survey N=93	75%
Describe the legal, social, ethical, and economic environments of business in a global context.	80% achieve a rate of 3 or 4.	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	90%
	80% score 4, 5, or 6	Senior Exit Survey	90%
Solve organization problems, individually and/or in teams, using quantitative, qualitative, and technology-enhanced approaches.	80% achieve a rate of 3 or 4.	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	81%
	80% score 4, 5, or 6	Senior Exit Survey	98%
Demonstrate professional communication and behavior.	80% achieve a rate of 3 or 4.	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	97%
	80% score 4, 5, or 6	Senior Exit Survey	100%
Apply knowledge of business concepts and functions in an integrated manner.	80% achieve a rate of 3 or 4	Senior Project	86%
	80% achieve a rate of 3 or 4	Case Study	84%
	80% score 4, 5, or 6	Senior Exit Survey	100%

Qualitative Assessment of Senior Project during 2018-19
During 2017-18 the department assessed SLOs using two direct and one indirect method - Case Study (BUS478) and Senior Project, and Student Exit Survey. The results from the qualitative assessment had shown increasing improvements. In 2018-19, all three methods showed that the program met its objectives, therefore during the 2018-19 academic year, the department focused on reviewing the senior project using a qualitative survey. The key themes that came from the assessment included:

- A need to review department outcome - *Communicate the major concepts in the functional areas of accounting, marketing, finance, information technology, and management*.
- A need to review the senior project rubric to ensure it meets the needs of all programs and is closely tied to our learning outcomes.

Department Level Review: Results, Closing the Loop of Prior Action Plans, and Action Plans for this academic year:

- **Senior Project**: The goal for the 2018-19 academic year was to find a way to have more than one senior project professor assess student work, allowing all faculty to review senior projects and provide feedback for improvement.
  - **Closing the Loop Activities**: During the 2018-19 academic year, department faculty focused its assessment efforts on a qualitative review of senior projects. A small sample of projects from each major was compiled. Each faculty reviewed multiple projects and completed a qualitative survey tool that was tied to department outcomes and the senior project rubric. The result of this assessment uncovered two areas that need further exploration:
    - **Senior Project Rubric**: The senior project rubric was either not being utilized or was being used in an inconsistent way. For example, the rubric notes that a literature review will be assessed as part of the senior project. There was some confusion that not all majors were required to complete a literature review. As such the department agreed that a team of faculty would review and update the senior project rubric to ensure that it was a scoring tool that could be used across the department. Moreover, all faculty teaching senior project will be trained on the rubric so that they can design their courses to meet the requirements. Lastly, the senior project rubric will be re-mapped to the department learning outcomes.
    - **Student Learning Outcomes** (Department-level): As part of the senior project review and mapping to the SLOs, the department agreed to also review the SLOs. While a full update is not needed, this is a good opportunity to ensure that the SLOs remain relevant. Since our accreditation body has updated and simplified requirements, this may be an opportunity to map SLOs to IACBE requirements.
  - **Action Plans for 2019-20:** During this academic year, the department will review the department's student learning outcomes and the senior project rubric. These will be prepared to be implemented in 2020-21. A full quantitative assessment using the current rubric will be completed during the 2019-20 year.
- **Case Study**: The plan for the 2018-19 year was for the course faculty to continue to discuss their approaches and share ideas for the Strategic Management course and the assignment. As with senior project, refining the approach to this class and assessment may help identify areas of improvement.
  - **Closing the Loop Activities**: The two faculty that teach the Strategic Management class did engage in discussions regarding approaches to the case study assignment. While one faculty incorporates the assessment into one assignment, the other spreads out the components of the assignment over the term. During the 2018-19 academic year, there was no formal assessment of the case study therefore there is no data relating to the effectiveness of these approaches.
  - **Action Plans for 2019-20**: In the 2019-20 academic year, a quantitative assessment will be conducted using the new assessment software. This new software may allow for multiple assessors to review the work.
- **Senior Exit Survey**: During the 2018-19 academic year, the faculty proposed an adjustment to the senior exit survey. Specifically, the department wished to replace the word <u>proficiency</u> with the word <u>understanding</u> feeling that this more accurately reflects the question's intent. The goal is for a minimum of 80% of students rate their understanding of each of the functional areas of business at a high level (4-6).
  - **Closing the Loop Activities**: The results of the exit survey for the 2018-19 year did meet the 80% threshold for all SLOs with the exception of accounting and finance, which is an improvement from prior years. However, although the word change for the exit survey was reported to the assessment office it was not made in the exit survey, therefore the department was not able to test out this change.

- **Action Plan for 2019-20**: This change will be submitted again for the 2019-20 assessment year.

2. **Program Student Learning Outcomes, Activities and Results**

Health Informatics			
Program Outcomes	**Minimal Acceptable Performance**	**Assessment** from 2017-18	**Results** from 2017-18
Interpret health policy and systems	80% achieve a rate of 3 or 4	Senior Project N=7	100%
	80% achieve a rate of 3 or 4	Community Project N=7	86%
	80% score 4, 5, or 6	Senior Exit Survey N=5	100%
Design and implement information systems	80% achieve a rate of 3 or 4.	Senior Project N=7	100%
	80% achieve a rate of 3 or 4	System Design Project N=4	25%
	80% score 4, 5, or 6	Senior Exit Survey N=5	100%

Program Level Review: Results, Closing the Loop of Prior Action Plans, and Action Plans for this academic year:

- **2018-19 Results:** The following summarizes 2018-19 assessment results:
  - The program intended to assess PSLO 3, however, the course was cancelled in 2016-2017, and the department did not assess programs in 2017-2018 due to a change in software.
  - The program focused on ensuring that students completed electives prior to senior project so that they were better prepared. The faculty have seen improvements through active advising fin both Klamath Falls and Portland Metro.
  - Assessment of senior projects in relation to the SLOs and PSLOs:
    - The Health Informatics program will continue to integrate core concepts throughout the curriculum. Students scored well on these areas when assessed by faculty. Students self-reported they could use support in the areas of accounting and finance. Accounting concepts are re-visited in program courses such as systems analysis and senior project. However, financial concepts with exception of ROI and NPV are not revisited in the curriculum. These areas have been consistently marked low for 3 years. Program faculty will review the curriculum this year to determine if other courses or outcomes could be added to courses.
    - Programmatically students performed well in the area of ethics and are confident in their ability to identify and respond to ethical dilemmas and social context.
    - Students performed at 81% on team-based approaches, slightly within the range of acceptable performance. Departmental faculty should integrate more applied team projects which require technology enhanced approaches. Students get significant experience working in teams, however, providing more technology in courses and increasing student's Information Technology acumen would support using technology to aid in decision making. Faculty should consider integrating more Information

Technology courses into programs such as Business Analytics and Database Applications.
- Students performed well on communication and professional behavior. Enforcing dress codes or code of conduct could aid in supporting professionalism.
- Students met expectations in the area of applying concepts in an integrated manner. Continued practice could assist students in raising their effectiveness.

- **Closing the Look Activities:** PSLOs 1 and 2 were assessed in 2017-2018. Students performed well on PSLO 1 but only 25% met expectations for PSLO 2. This course has not run in Klamath Falls since the last assessment period and has been offered as a cross-campus class. The cross-campus environment likely hindered student progress, however, the outcome has not been assessed since then. The program will continue to focus on this outcome moving forward.

- **Action Plans for 2019-20:** Due to the issues noted above, the following actions will continue:
  - **Senior Project**: Students are currently meeting expectations for senior project. The online students do not do as well as those working with faculty on campus. Increased interaction with online students is being planned. In addition, the IT/HI faculty have worked with all faculty advising IT/HI students to ensure that focused electives are completed before senior project is started. This will ensure that students have taken 300 and 400 level electives in their chosen area before attempting project management in the senior project sequence.
  - **Systems Design Project**: Faculty will review the curriculum for MIS 442 which includes a Systems Design Project. The faculty will evaluate effectiveness and consider re-structuring the curriculum if needed. This will aid in a student's ability to think critically and problem solve.