

# 2019-2020 Program Assessment Report

## Sleep Health A.A.S. Polysomnographic Technology Option

### 1. Mission, Objectives & Learning Outcomes

#### **Oregon Tech Mission**

Oregon Institute of Technology, an Oregon public university, offers innovative and rigorous applied degree programs in the areas of engineering, engineering technologies, health technologies, management, and the arts and sciences. To foster student and graduate success, the university provides an intimate, hands-on learning environment, focusing on application of theory to practice. Oregon Tech offers statewide educational opportunities for the emerging needs of Oregonians and provides information and technical expertise to state, national and international constituents.

#### **Core Theme 1: Applied Degree Programs**

Oregon Tech offers innovative and rigorous applied degree programs. The teaching and learning model at Oregon Tech prepares students to apply the knowledge gained in the classroom to the workplace.

#### **Core Theme 2: Student and Graduate Success**

Oregon Tech fosters student and graduate success by providing an intimate, hands-on learning environment, which focuses on application of theory to practice. The teaching and support services facilitate students' personal and academic development.

#### **Core Theme 3: Statewide Educational Opportunities**

Oregon Tech offers statewide educational opportunities for the emerging needs of Oregon's citizens. To accomplish this, Oregon Tech provides innovative and rigorous applied degree programs to students across the state of Oregon, including high-school programs, online degree programs, and partnership agreements with community colleges and universities.

#### **Core Theme 4: Public Service**

Oregon Tech will share information and technical expertise to state, national, and international constituents.

## **Program Mission**

The Sleep Health - Polysomnography option, an Associate of Applied Science degree program, provides instruction and clinical practice in a distance learning format. The vocational Certificate program, typically completed the first year of the 2-year PSG A.A.S., prepares students to achieve professional proficiency in sleep health and technology and to acquire the professional credentials in needed to work as a Sleep Technologist (RPSGT) immediately upon completion of the Certificate. Typically, a newly registered RPSGT works as a staff sleep technologist on night shift, performing overnight sleep studies. Often after 3 to 5 years, an RPSGT is offered a daytime position in the sleep lab, performing narcolepsy testing, helping sleep apnea patients with their treatments, and analyzing data recorded by the night technologists. Usually after 5 years as a sleep technologist, a graduate with the A.A.S. degree would be considered for a management position in a sleep center.

## **Program Alignment to Oregon Tech Mission and Core Themes**

The A.A.S. Sleep Health – Polysomnography program is designed to meet the needs of new sleep technicians working in sleep centers across the country. The program meets one of the pathways for technicians sitting for the national registry exam in sleep technology: “completion of a program accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP)”. This distance education program is designed to meet the CAAHEP Committee on Accreditation for Polysomnographic Technology (CoA PSG) standards and the needs of place-bound technicians. The entire program is delivered online with local clinical facilities, near where the students are located, providing the clinical practicum.

Core Theme 1: Applied Degree Programs: We are dedicated to providing the highest quality education in the EMS industry as demonstrated through the caliber of our faculty, the tremendous success of our alumni, and the enthusiastic support of our EMS employers.

Core Theme 2: Student and Graduate Success: Our aim is to continue to partner with high potential students, from diverse backgrounds and perspectives, and assist them in becoming national EMS clinical and organizational leaders.

Core Theme 3: Statewide Educational Opportunities: We will continue supporting bold intellectual pursuits that advance and expand the EMS industry’s comfort zone in order to improve and innovate both the quality of individual patient care as well as the systems of EMS care.

Core Theme 4: Public Service: We strive to partner with communities, industry, other colleges and universities, and private citizens to develop community-based solutions to community problems.

## **2. Program Description and History**

**\*The focus of this assessment report will be on the PSG Certificate portion of the PSG AAS as nearly all PSG students enter the program to first earn the Certificate which allows sitting for the national board exam in sleep technology.**

## History

The program began in 2007 as the first national fully-online CAAHEP accredited program for polysomnography.

## Description

For the PSG Certificate, students take online didactic courses along with completing a part-time clinical rotation in an AASM- accredited sleep lab in their local area. Students must complete a total of 540 clinical sleep lab hours during the program per our CAAHEP accreditation, with 360 of the hours being completed during night shift. Students are eligible to sit for the national registry exam in Polysomnography Technology (RPSGT) offered by the Board of Registered Polysomnographic Technology (BRPT) upon completion of the first-year certificate courses and clinical rotation.

A legal affiliation agreement is completed between the clinical site and Oregon Tech and the student typically completes some on-boarding requirements of the clinical site. OIT requires students to have current BLS/CPR, updated immunization record, and complete a national criminal background check.

In 2019-2020, students from the following states were admitted: OR, WA, FL, NC, MD, KY

## Enrollment and Attrition (PSG Certificate)

	2017-2018	2018-2019	2019-2020
Admitted	17	12	5
Graduated	10	10	3
Passed National Exam	9	9	2
Employed	9	9	2
Average Salary	26/hr	23/hr	28/hr

## Data Source:

[https://oregontech-my.sharepoint.com/:x/g/person/michael\\_schwartz\\_oit\\_edu/EXQ4fjQBTq1NhvM2nnj0E\\_cBdQwZRwPB\\_Jy25PDvczL1tg?e=xyQerv](https://oregontech-my.sharepoint.com/:x/g/person/michael_schwartz_oit_edu/EXQ4fjQBTq1NhvM2nnj0E_cBdQwZRwPB_Jy25PDvczL1tg?e=xyQerv)

## Industry Relationships:

100% of 2019-2020 admitted students were set up for clinical rotation at a site with an existing affiliation agreement with Oregon Tech. This is up from 60% in 2018-2019.

## Data Source:

[https://oregontech-my.sharepoint.com/:x:/g/personal/michael\\_schwartz\\_oit\\_edu/EXQ4fjQBTq1NhvM2nnj0E\\_cBdQwZRwPB\\_Jy25PDvczL1tg?e=xyQerv](https://oregontech-my.sharepoint.com/:x:/g/personal/michael_schwartz_oit_edu/EXQ4fjQBTq1NhvM2nnj0E_cBdQwZRwPB_Jy25PDvczL1tg?e=xyQerv)

### **Success Stories:**

All students complete a 540 hour clinical sleep lab rotation to earn a PSG Certificate, ensuring that all students have a robust hands-on learning experience. All rotations are conducted under the guidance of Oregon Tech online faculty and on-site RPSGT working professionals. Below are a few positive and negative comments from 2019-2020 graduates and employers.

### **Comments From Student CAAHEP Graduate Survey (completed after student starts working):**

- Found the hands-on clinical rotation valuable
- Patient interactions very helpful
- The structure of the clinical program was very helpful
- Prepared me for real life clinical situations
- More focus on the BRPT exam would have been helpful
- Plenty of time in the clinic
- More updated materials

### **Comments From Employer CAAHEP Survey of Recent Graduates:**

- Great with professionalism and great with patient care
- We are very pleased with Zach's knowledge of sleep medicine
- Andy completed his rotation at our lab; progressed quickly with strong work ethic
- Maybe more focus on current scoring rules
- Ensure students are not taught shortcuts by mentors

### **Data Source:**

[https://oregontech-my.sharepoint.com/:x:/g/personal/michael\\_schwartz\\_oit\\_edu/EfnXNCmH0S5Dj3vTDLPZCKEBzF59K6NZ4\\_fqE9psLzZV4w?e=AhLxLA](https://oregontech-my.sharepoint.com/:x:/g/personal/michael_schwartz_oit_edu/EfnXNCmH0S5Dj3vTDLPZCKEBzF59K6NZ4_fqE9psLzZV4w?e=AhLxLA)

### **Program Review:**

Program Student Learning Outcomes and Objectives were reviewed by program faculty via phone call in Fall 2019. Faculty review is an on-going process with frequent phone/email communication between the Program Director and main faculty member (Jane Peri, PhD, former Program Director), as well as periodic communication with the Medical Director (David Panossian, M.D.) and the Department Chair (Jeff Pardy, RRT, MBA)

The annual Program Advisor meeting took place on Dec 6, 2019. (Zoom call). In attendance were:

- Program Director
- Medical Director
- Key faculty member/current instructor, former Sleep Health Program Director
- 2 Key industry leaders/clinical site managers
- 1 Experienced sleep lab RPSGT preceptors
- 1 Recent graduate

**Annual Program Review Notes:**

[https://oregontech-my.sharepoint.com/:w:/g/personal/michael\\_schwartz\\_oit\\_edu/EZcAXAqNFL9PvqMzMrXe\\_IMBIsRjoHZulM6atyMK5sEl6Q?e=F30jBg](https://oregontech-my.sharepoint.com/:w:/g/personal/michael_schwartz_oit_edu/EZcAXAqNFL9PvqMzMrXe_IMBIsRjoHZulM6atyMK5sEl6Q?e=F30jBg)

### 3. Program Educational Objectives

The education objectives of the Sleep Health - Polysomnographic Technology option are twofold:

1. Prepare students for immediate employment anywhere in the United States in sleep technology
2. Provide students with the skills to move into supervisory and patient education roles in sleep centers

#### Program Student Learning Objectives (PSLOs)

PSLO #1: Demonstrate the ability to review patient information and prepare for a polysomnogram.

PSLO #2: Demonstrate ability to apply sensors correctly with acceptable impedances for data collection.

PSLO #3: Demonstrates ability to calibrate signals, document, and troubleshoot recording artifact.

PSLO #4: Demonstrates ability to accurately analyze and summarize adult PSG data.

PSLO #5: Demonstrates understanding of PAP and O2 theory, application and contraindications.

PSLO #6: Demonstrates knowledge of PAP therapy adherence, management, and patient education.

PSLOs are reviewed each year during the annual advisory board meeting.

### 4. Curriculum Map

COURSE	PSLO 1	PSLO 2	PSLO 3	PSLO 4	PSLO 5	PSLO 6
Bio 200	F					
Echo 227				F		
RCP 120				F		

PSG 211	F	F				
PSG 221		P	P			
PSG 231				F	F	
PSH 246	F					
PSG 264	F					
PSG 271A	P	F	F	P		
PSG 271B		P	P	P	P	P
PSG 271C	C	C	C	C	C	C
PSG 291						F

F = Foundational, P = Practice, C = Capstone

## 5. Assessment Cycle

Due to the relatively small student cohorts, all PSLOs are assessed annually. The direct assessment of student technical performance in sleep lab rotation will now be reported separately as a global % measure, not by rubric.

	2017-2018	2018-2019	2019-2020
<b>PSLO 1</b>	Comp Exam	Comp Exam	Comp Exam
	Direct Practical	Direct Practical	Direct Practical
	Student Survey	Student Survey	Student Survey
<b>PSLO 2</b>	Comp Exam	Comp Exam	Comp Exam
	-----	10/20 Diagram	10/20 Diagram
	Practical	Practical Exam	Direct Practical
<b>PSLO 3</b>	Student Survey	Student Survey	Student Survey
	Comp Exam	Comp Exam	Comp Exam
	Practical	Practical Exam	Direct Practical
<b>PSLO 4</b>	Student Survey	Student Survey	Student Survey
	Comp Exam	Comp Exam	Comp Exam
	-----	Summary Graphs	Summary Graphs
<b>PSLO 5</b>	-----	EKG Recognition	EKG Recognition
	ISR	ISR	ISR
	Practical	Practical Exam	Direct Practical
<b>PSLO 6</b>	Student Survey	Student Survey	Student Survey
	Comp Exam	Comp Exam	Comp Exam
	Practical	Practical Exam	Direct Practical
<b>PSLO 6</b>	Student Survey	Student Survey	Student Survey
	Comp Exam	Comp Exam	Comp Exam
	Practical	Practical Exam	Direct Practical

	Practical	Practical	Direct Practical
	Student Survey	Student Survey	Student Survey

## 6. Assessment Activity

- All data was taken from the 201903 PSG 271C (capstone course).
- All measures are direct, except the student survey which is indirect.
- Meeting criteria is score of 3 or higher in rubric (shown below) for each PSLO item.

### Results:

#### PSLO #1:

**Demonstrate the ability to review patient information and prepare for a polysomnogram.**

MEASURE	AVE STUDENT SCORE	RUBRIC SCORE
COMP EXAM	66%	3
STUDENT SURVEY	Mostly "Strongly Agree"	5

#### PSLO #2:

**Demonstrate ability to apply sensors correctly with acceptable impedances for data collection.**

MEASURE	AVE STUDENT SCORE	RUBRIC SCORE
COMP EXAM	78%	4
10/20 DIAGRAM	75%	4
STUDENT SURVEY	Mostly "Strongly Agree"	5

#### PSLO #3:

**Demonstrates ability to calibrate signals, document, and troubleshoot recording artifact.**

MEASURE	AVE STUDENT SCORE	RUBRIC SCORE
COMP EXAM	74%	4
STUDENT SURVEY	Mostly "Agree"	4

#### PSLO #4:

**Demonstrates ability to accurately analyze and summarize adult PSG data.**

MEASURE	AVE STUDENT SCORE	RUBRIC SCORE
COMP EXAM	69%	3
SUMMARY GRAPHS	61%	3
EKG RECOGNITION	65%	3
ISR SCORING	100%	5
STUDENT SURVEY	Mostly "Agree"	4

**PSLO #5:**

**Demonstrates understanding of PAP and O2 theory, application and contraindications.**

MEASURE	AVE STUDENT SCORE	RUBRIC SCORE
COMP EXAM	74%	4
STUDENT SURVEY	Mostly "Agree"	4

**PSLO #6:**

**Demonstrates knowledge of PAP therapy adherence, management, and patient education.**

MEASURE	AVE STUDENT SCORE	RUBRIC SCORE
COMP EXAM	83%	4
STUDENT SURVEY	Mostly "Agree"	4

**RESULTS RUBRIC:**

COMPREHENSIVE EXAM data taken from Item Analyses

- >85%=5, 70-84%=4, 55-69%=3, 40-54%=2, <40%=1

STUDENT SURVEY data taken from 1-5 Item Analyses

- STRONGLY AGREE=5, AGREE=4, NEITHER=3, DISAGREE=2, STRONGLY DISAGREE=1

10/20 DIAGRAM data taken from Comprehensive Exam/Student Analysis: 21 electrode locations to identify.

- >85%=5, 70-84%=4, 55-69%=3, 40-54%=2, <40%=1

EKG RECOGNITION data taken from Comprehensive Exam/Student Analysis: 12 rhythms to identify.

- >85%=5, 70-84%=4, 55-69%=3, 40-54%=2, <40%=1

SUMMARY GRAPHS data taken from Comprehensive Exam/Item Analysis: 3 graphs to summarize.

- >85%=5, 70-84%=4, 55-69%=3, 40-54%=2, <40%=1

ISR SCORING data: 3 categories of scoring (sleep, resp, limb)

- >85%=5, 70-84%=4, 55-69%=3, 40-54%=2, <40%=1

**Additionally, we ask students to demonstrate how to conduct a full, accurate polysomnogram with PAP titration, verified by RPSGT preceptor:**

MEASURE	STUDENT	STUDENT SCORE
PRACTICAL EXAM	TE	97%
PRACTICAL EXAM	AG	86%
PRACTICAL EXAM	MM	90%
PRACTICAL EXAM	HP	90%

\*Students MM and HP practical exams done via Zoom observation due to Covid.

### **Results Trend History (compared to 2018-2019)**

PSLO #1: Students continue to do well

PSLO #2: Students are improving

PSLO #3: Students continue to do well

PSLO #4: Students continue to do well

PSLO #5: Students continue to do well

PSLO #6: Students continue to do well

### **Faculty Analysis:**

The following specific content areas were identified as most challenging for students in 2019-2020:

- Preparing patient for sleep study
- Analyzing sleep data
- Recognizing cardiac arrhythmias

### **Faculty Discussion:**

Assessment data were shared with key faculty via cell calls during the month of October 2020. Sampled students in PSG 271C, the capstone course, overall did fairly. All measures across all six PSLOs met the performance criteria of a rubric score of 3 or higher. This was impressive due

to the small sample size, the impact of Covid pandemic restricting/preventing lab access of students in rotations, and that the Practical Exam is now reported as a global score (not included in the rubric that is based on didactic material). As seen in table above, students overall did well in their clinical rotations.

Faculty will investigate ways to increase focus and content in areas identified as most challenging in all PSG Certificate courses.

## **Student Comments from PSG 271C Student Survey:**

### **Program Strengths:**

- Patient interaction
- The program covers a wide variety of topics and is fairly easy to understand
- The quizzes and the ease of contacting your professor

### **Program Weakness:**

- Sleep stages
- Sometimes the amount of information being given may be overwhelming
- discussion groups

### **OIT Customer Service:**

- Excellent
- The customer service provided by the staff has been excellent.
- PSG faculty was very helpful especially when Covid caused the disruption.

### **Program Improvements:**

- Incorporating more visual models

### **Other Comments:**

- It has been a wonderful learning experience
- I would recommend this program to others!

## **7. Data-driven Action Plans: Changes Resulting from Assessment**

Due to the small student cohort, the assessment data are prone to instability, and this was likely present in the data. A larger cohort will be available for assessment this coming year. The impact on Covid pandemic was dramatic on student clinical rotations and also negatively affected didactic learning. However, PSG faculty quickly created Zoom sessions and additional

ISR data analysis opportunities to supplement practical learning as lab access was often impacted adversely. This was approved by CAAHEP.

Specifically, the effect of reduced lab access due to Covid over spring and summer terms seemed to mainly affect daytime skill learning, primarily areas in PSLO #4: analyze and summarize PSG data. This area of learning is weighted to the final term of the PSG Certificate program, most of which fell during spring and summer. Students will be followed closely in lab rotations to look for ways to possibly gain daytime experience intermittently over their 3-term rotation if needed.

## **8. Closing the Loop: Evidence of Improvement in Student Learning**

The educational objectives of the Sleep Health - Polysomnographic Technology option are to:

1. prepare students for immediate employment anywhere in the United States in sleep technology
2. provide students with the skills to move into supervisor and patient education roles in sleep centers

As students continue to pass the national registry exam at above-national rates, the Sleep Health – Polysomnography Option program is meeting expectations. Additionally:

- Key program faculty are active in the field professionally
- Students provide mostly positive experiences on exit surveys
- OIT is a nationally-recognized institution of excellence and a draw for students wanting to excel in the field with an AAS or BS degree. Increasingly, sleep labs (and some state licensing boards) are requiring an AAS degree or higher in sleep technology

### **Closing the Loop**

No significant changes will be implemented regarding didactic teaching. Sleep labs seem to be slowly opening up now with numerous precautions (e.g., managing aerosolization from PAP). Students will be queried closely about their specific lab rotation situations, as well these specific learning areas during their time in the program.

Last year, with the change of the practical exam being conducted by the sleep lab preceptors, questions specific to bi-level PAP/advanced PAP modalities were included. Assessment data showed criteria was met by students in this area. An additional module assignment will be added this academic year specific to bi-level PAP/advanced PAP modalities. We will continue to monitor this important area of polysomnography.

## **Final Thoughts**

At this time, no significant modifications are required in the delivery of the program to students. Minor modifications are discussed in this assessment report. This assessment report will be shared later this year in the annual program advisor meeting.