

NIOSH Training Program Grant (TPG) Final Report
Occupational Safety & Environmental Health Program (OEH)

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LIST OF ABBREVIATIONS

ABET	Accreditation Body for Engineering and Technology
ASSP	American Society of Safety Professionals
ASP	Associate Safety Professional
BCSP	Board of Certified Safety Professionals
CSP	Certified Safety Professional
CIH	Certified Industrial Hygienist
MU	Millersville University
NIOSH	National Institute of Occupational Safety & Health
NSC	National Safety Council
OSEH	Occupational Safety & Environmental Health
TPG	Training Program Grant
OSHA	Occupational Safety & Health Administration
URM	Underrepresented Minorities

Abstract

Millersville University (MU) offers an undergraduate degree program in Occupational Safety & Environmental Health (OSEH). The OSEH program is one of only six schools in the nation that offers a degree that is accredited by the Accreditation Board for Engineering and Technology (ABET) under the Environmental, Health, and Safety (EHS) Criteria. Historically, the OSEH program at Millersville University has provided a strong educational experience that prepares graduates for entry-level positions in safety and health or to pursue graduate degrees in specialized areas within Safety and Environmental Health.

Goals: The main goals of the Training Program Grant (TPG) were to (1) provide financial assistance to students in the OSEH program. This being a key factor in attracting outstanding academic candidates, (2) Help in retaining those students through completion of the program, (3) attract and retain qualified minority and female students, (4) permit expansion of the undergraduate program course offerings and Continuing Education Courses and Programs, and (5) supplement student and faculty travel to professional conferences identified by NIOSH as essential to program objectives.

Accomplishments: Over the past 5 years the TPG has been used to provide tuition and fees assistance to 53 students working towards a B.S. degree in OSEH. In each and every case, MU students have found employment in the safety & health profession, clearly fulfilling the intent of the Occupational Safety & Health Act, which created NIOSH. Several of the TPG recipients enrolled in graduate school to continue their education in safety and health over the time of this grant. About 50 % of the recipients of tuition and fee assistance have either been female or underrepresented minority (URM) students.

Over the past 5 years the TPG has been used to supplement student and staff travel to professional development conferences and to also support continuing education of full-time OSEH faculty. Continuing education opportunities are an important part of remaining up to date with current trends in safety and health, maintaining and improving current skills, and continuing to develop the professionalism necessary to properly train future safety and health professionals.

The program was able to increase its visibility by providing financial support to students working towards the B.S. degree in OSEH. Over the past 5 years, the OSEH program has maintained steady or slight increase in enrollment (Approximately 10% growth in enrollment). Supporting tuition and fees increased the opportunities for students to elect cooperative education experiences, where they gained practical field experience under the supervision of an experienced EHS professional.

In addition to the undergraduate course offerings, a number of Continuing Education Courses and programs have been offered. Examples for these courses and programs are the OSHA 10-hour for General Industry and Construction Industry, HAZWOPER Training, and a Confined Space Entry Training Course among others. Offerings in these areas have had a positive influence on safety and health throughout the region.

In summary, The NIOSH TPG has been very instrumental over the past 5 years in making the OSEH program at MU a clear leader in undergraduate safety and health programs in the country. The graduates of the OSEH are well regarded by employers not just in the region, but across the country.

Summary of Training Program

Program Description

Millersville University (MU) offers an undergraduate degree program in Occupational Safety & Environmental Health (OSEH). The OSEH program is one of only three schools in the nation that offers a degree that is accredited by the Accreditation Board for Engineering and Technology (ABET) under the Environmental, Health, and Safety Criteria. Historically, the OSEH program at Millersville University has provided a strong educational experience that prepares graduates for entry-level positions in safety and health or to pursue graduate degrees in specialized areas within Safety and Environmental Health.

Trainees

Most students covered under this program are pursuing a Bachelor of Science degree in Occupational Safety & Environmental Health program. If a student meets the university admission standards they can be admitted directly into the Occupational Safety & Environmental Health program. Admission to Millersville University is granted without regard to race, color, religion, sex, national origin, ancestry, age, handicap, marital status or lifestyle.

Training Facilities

The laboratory facilities dedicated to the OSEH program include separate areas dedicated to Safety Engineering, Fire Prevention & Control, Industrial Hygiene, and Ergonomics.

Goals and Objectives

The Occupational Safety & Environmental Health (OSEH) program is designed for people interested in professions in the safety and health fields. The general education courses are used to develop basic science knowledge, while the major courses focus on the application of science and mathematics in the technical and managerial aspects of safety and health. Objectives of the program include:

- Prepare students to enter the occupational safety and environmental health profession as a generalist with skills necessary to begin a successful career.
- Encourage interest in continued professional development through formal graduate study and through other professional development courses and programs.
- Provide fundamental education necessary for success on the Board of Safety Professionals' Safety Fundamentals Exam (ASP).
- Provide a solid educational foundation on which the graduate can build a career in an OSEH area, as well as develop a multitude of scientific, social, and culturally based pursuits.
- Prepare students to function within multidisciplinary teams.
- Provide information, knowledge, and training that can lead to safer and healthier work environments throughout the region.

In addition to overall program objectives, each course within the OSEH curriculum has a well-defined set of objectives specific to that course. Meeting the objectives of each course establishes the educational foundation necessary to support the overall program goals.

ABET Accreditation and The Board of Certified Safety Practitioner's (BCSP) Qualified Academic Program (QAP) Status:

ABET accreditation provides assurance that the OSEH Program meets the quality standards of the safety and health profession. Graduates from our program have a solid educational foundation and are capable of leading the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public. ABET accreditation also offers our graduates credibility with employers.

All graduates of the OSEH program received the Graduate Safety Practitioner (GSP) designation from the Board of Certified Safety Professionals (BCSP) by virtue of achieving the Qualified Academic Program status. This designation is equivalent to the Associate Safety Professional (ASP) that is received upon successfully passing the Safety Fundamental Exam (ASP) portion of the BCSP certification process.

Feedback from employers and industry supervisors during the internship and cooperative education experiences continues to be very positive and highly complimentary with respect to students' preparation.

Main Goals of the Training Program Grant:

The main goals of the Training Program Grant (TPG) were to (1) provide financial assistance to students in the OSEH program. This being a key factor in attracting outstanding academic candidates, (2) Help in retaining those students through completion of the program, (3) attract and retain qualified minority students, (4) permit expansion of the undergraduate program course offerings and Continuing Education Courses and Programs, and (5) supplement student and faculty travel to professional conferences identified by NIOSH as essential to program objectives.

Over the last funding period, the TPG was been used to supplement student and staff travel to professional development conferences and to also support continuing education of full-time OSEH faculty. Continuing education opportunities are an important part of remaining up to date with current trends in safety and health, maintaining and improving current skills, and continuing to develop the professionalism necessary to properly train future safety and health professionals.

Key Personnel:

- Jack Ogutu, Ph.D., CSP, Program Coordinator
- Mehdi Khalighi, Ph.D., MPH., CSP, CIH, Associate Professor
- Betty-Jo Legutko, Ph.D., CSP, Tenure-Track Faculty
- Len Litowitz, PhD., AEST Department Chair
- Amy Fasano, MPH, Adjunct Instructor
- Julie Keich, M.S., CSP, Adjunct Instructor
- Edward Krow, M.S., Adjunct Instructor
- Jeff Hannis, M.S., Adjunct Instructor

Program Highlights and Accomplishments

The five main goals and accomplishments of the training program grant are as follows:

Goal 1: Tuition, Fees and Scholarships

The ability to provide financial assistance to students in the OSEH program has been a key factor in attracting outstanding academic candidates. Scholarships were used to increase opportunities for students to complete industry-based cooperative education and internship experiences (for academic credit).

Goal 2: Student Retention

The goal of financial assistance was not only to attract qualified students, but to also retain those candidates through completion of the program

Accomplishments/Highlights for Goals 1 & 2:

In the past five years the OSEH program has been able to provide financial assistance to 53 students working towards a B.S. degree in OSEH. All the graduates have found employed in the EHS field within the first six months of graduation. In addition to providing tuition and fees assistance, the TPG has provided scholarships to students to complete industry-based co-operative education. The internship requirement is a primary strength of the OSEH program. The industry supervisor must be a degreed safety and health professional or equivalent. The table below summarizes accomplishments of goals 1 and 2 over the past five years.

Academic Training Report						
Since Beginning of Project Period						
Degree Awarded	# Full-Time Trainees Enrolled	# Full-Time NIOSH-Supported Trainees	# Part-Time Trainees Enrolled	# Part-Time NIOSH-Supported Trainees	# Trainees Graduated	Employed in OS&H Field or Enrolled in OS&H Academic Program
Baccalaureate						
2015/2016	120	12	14	0	34	100%
2016/2017	131	13	5	0	36	100%
2017/2018	133	10	11	0	38	100%
2018/2019	128	9	14	0	35	100%
2019/2020	130	9	7	0	36	95%

Overall, the OSEH program has been able to produce outstanding graduates over the past five years. The awards and successes of our graduates is evidence of the quality of the training program. In last few years, the NIOSH-Supported trainees have accomplished the following:

- 2018 ASSP Diversity Committee Scholarship winner
- 2019 NSC Scholarship Recipient
- 2020 ASSP AMAZON Scholarship winner.
- 2020 ASSP Foundation BCSP Scholarship Recipient.

A sampling of job titles held by OSEH graduates include the following:

- Health & Safety Specialist
- EHS Associate
- Safety Representative
- Safety Manager
- Safety Engineer
- Industrial Hygienist
- Safety & Health Consultant
- Compliance Safety & Health Officer

Goal 3: Underrepresented Minority (URM) Students

Funding for tuition and fees was to assist in attracting and retaining qualified minority and female candidates.

Accomplishments/Highlights for Goal 3:

Over the past five years, the program has experienced an increase in enrollment of female and underrepresented minority students. The female student population in the program has increased by more 40%. Although it is difficult to attribute TPG funding alone as the sole reason for the increase, the funding has been instrumental in retaining those student groups. Scholarships have been provided to some of the female and URM students to complete the co-operative education requirement.

Academic Training Report			
Since Beginning of Project Period			
Degree Awarded	# Full-Time NIOSH-Supported Trainees	# Part-Time NIOSH-Supported Trainees	# Under Represented Minority (URM) NIOSH-Supported Trainees
Baccalaureate			
2015/2016	12	0	2
2016/2017	13	0	2
2017/2018	10	0	1
2018/2019	9	0	1
2019/2020	9	0	1

Goal 4: Continuing Education

Continuing education opportunities are an important part of remaining up to date with current trends in safety and health, maintaining and improving current skills and continuing to develop the professionalism necessary to properly train future safety and health leaders. Millersville University's OSEH program will seek opportunities to provide continuing education courses to safety professionals from the local region.

Goal 5: Student and Faculty Travel

Develop faculty and student professionalism by supporting travel to professional development conferences. NIOSH has identified travel to professional development conferences and seminars as essential to program objectives.

Accomplishments/Highlights for Goals 4 & 5:

Faculty members in the OSEH program recognize the value of attending professional conferences. Over the past five years, at least one faculty member has attended the national ASSE Professional Development Conference (PDC). Over the past five years the NIOSH grant has supplemented travel budgets for approximately 30 students to attend various conferences and participate in professional development activities. Faculty and Students have been able to attend professional seminars at these events and interact with other professionals in the EHS field. Faculty participation at the ASSP PDC seminars and events has been very active.

A number of Continuing Education Courses and programs have been offered. Examples of these courses and programs are the OSHA 10-hour Courses for Construction Industry and General Industry, and a Confined Space Entry Training Course among others.

Other Accomplishments and Highlights**ABET Accreditation**

The OSEH program is currently going through the ABET re-accreditation process. The ABET team will be conducting a virtual visit beginning November, 15 – November, 17, 2020.

ABET accreditation allows the OSEH program to set itself apart as one of the select institutions in the nation offering strong educational experience that prepares graduates for entry-level positions in safety and health or to pursue graduate degrees in specialized areas within Safety and Environmental Health. Having the TPG status strengthens our standing during the accreditation process.

Although it is hard to attribute reaccreditation solely to the NIOSH TPG, the TPG has increased the visibility of the program by providing financial support to students working toward a B.S. degree in OSEH.

Educational/Research Experience Agreement – NIOSH, Director for Science Office

This past summer the MU-OSHEH program entered into an agreement with the NIOSH science division to provide educational experiences for our trainees. Through this program, the trainees get to collaborate with the NIOSH scientists on engineering sciences, industrial hygiene, public health or safety-related educational/training and research experience opportunities. During the Summer 2020 semester two trainees participated in the following research experiences:

Research Experience 1: Literature Review for Opioid Use & Overdose in the Transportation Warehousing and Utilities Sector

MU Trainee: Emily Rae Seiler

NIOSH Mentor: Hope Tiesman, PhD, Research Epidemiologist
NIOSH/Division of Safety Research/Analysis and Field Evaluations Branch

NIOSH Mentor: Sydney Webb, PhD, Health Communications Specialist
NIOSH/Division of Safety Research/Office of the Director

Research Experience 2: A literature Review on Potential Worker Health and Safety Risks Associated with Biomanufacturing

MU Trainee: Emily Rae Seiler

NIOSH Mentor: Laura Hodson, MSPH, CIH, FAIHA
Acting Branch Chief, Emerging Technologies Branch

Research Experience 3: Developing Plain Language Recommendations for Fire Fighter Fatality Investigation Reports

MU Trainee: Sam Welk

NIOSH Mentor: Sydney Webb, PhD, Health Communications Specialist
NIOSH/Division of Safety Research/Office of the Director

NIOSH Mentor: Suzanne Marsh, MPA, Statistician
Division of Safety Research/Surveillance and Field Investigations Branch

Research Experience 4: Identifying the Hazards Associated with the Manufacturing of Butane Honey Oil/Butane Hash Oil (BHO)

MU Trainee: Sam Welk

NIOSH Mentor: Jeff Funke, CSP, Team Leader Fatality Investigations Team
Division of Safety Research/Surveillance and Field Investigation Branch

NIOSH Mentor: Murrey Loflin, MS, Investigator
NIOSH/Division of Safety Research/Surveillance and Field Investigation Branch

NIOSH Mentor: Matt Bowyer, General Engineer
NIOSH/Division of Safety Research/Surveillance and Field Investigations Branch

The trainees work with NIOSH will be highlighted on the [NIOSH Science Blog](#) later in the year.

Relevance/Impact

In the past 5 years the NIOSH Training Program Grant has funded over 50 students with tuition support and travel to national Occupational Safety and Health Conferences. In each and every case, MU students have found employment in the safety and health profession, clearly fulfilling the intent of the Occupational Safety & Health Act, which created NIOSH.

Additionally, the American Society of Safety Professionals, the Board of Certified Safety Professionals, and the National Safety Council have recognized MU and its students for their exceptional achievements in the field of OSEH. This has been a testament to the quality of safety and health professionals MU is sending to the OSEH field. Overall, this grant has been helpful in preparing students for entry into the safety and health profession.

Summary

The Occupational Safety & Environmental Health Program at Millersville University is a high quality, ABET accredited undergraduate program with solid reputation and a very bright future. Current students, program graduates, industry associates, and other safety professionals all recognize the value of an education from the OSEH program. The emphasis on laboratory activities for reinforcement of theoretical principles has made the OSEH program unique among its peers. The NIOSH TPG program has been very instrumental over the last 5 years in making the OSEH program at MU a clear leader in undergraduate safety and health programs in the country.