

NOISE & OTHER PHYSICAL AGENTS

OEHS 6754

Instructor:

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Class Meeting Schedule: Monday/Wednesday @ 10:00-11:00AM

Course Structure: Lectures/Discussions/Homework/Exams

Course Overview:

This course will provide an in-depth study of sound, especially as it relates to occupational noise. Course topics include physiology of hearing, physics of sound, instrumentation, regulations, and noise controls. In addition, this course will provide an overview of other physical agents including; ionizing and non-ionizing radiation (e.g., lasers, microwaves, ultra violet, infrared, and radio frequency radiation), and thermal stresses (heat and cold stress).

Objectives:

The student will, through discussion and student participation, gain a working knowledge in the following areas related to noise and other physical agents:

- Become aware of principles of the physics of sound and current regulations for occupational noise and hearing compensation.
- Develop a basic understanding of ionizing and non-ionizing radiation in terms of fundamental principles, health risks, and methods for emission and exposure control.
- Become aware of the potential physical and health effects from vibration and methods for control, and be able to discuss with others.
- Learn the basic information related to exposure concerns and controls associated with thermal stresses and be able to discuss with others.
- Learn the basic information on models related to office and industrial ergonomics.
- Develop a better understanding of relationship between understanding of associated costs for controls and the value to both employees and employers for implementing emission and/or exposure controls.

COURSE SCHEDULE

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Date	Day	Subject	Assignments ¹	Lecturer
8/19 8/21	M W	Introduction to Noise	Ch 21 DiNardi or Ch 1,2- NM	R. Handy
8/26 8/28	M W	Physiology of Hearing	Ch 21 DiNardi or Ch 4,5 - NM	R. Handy
9/04	W	Physics of Sound	Ch 21 DiNardi or Ch 2 - NM	R. Handy
9/09 9/11	M W	Measuring Sound; Homework #1 (Due: 9/11)	Ch 21 DiNardi or Ch 3, 14 - NM	R. Handy
9/16 9/18	M W	Noise Measurement Instrumentation/ Regulation Overview	Ch 21 DiNardi or Ch 3, 7 – NM/ Ch 21 DiNardi or Ch 6; NM 29 CFR 1910.95	R. Handy
9/23 9/25	M W	Exam 1 Review Exam 1 (9/25)	NA	NA
09/30 10/02	M W	Control of Noise Exposures	Ch 21 DiNardi or Ch 9, 10 -NM	R. Handy
10/07 10/09		Fall Break	NA	NA
10/14 10/16	M W	Vibration and Doppler Effect	Ch 21 DiNardi, D. Anna	R. Handy
10/21 10/23	M W	Electromagnetic Radiation – Overview, Laser, Microwave, Visible, UV (A,B,C); Homework #2 (Due: 10/23)	Ch 22 DiNardi, D. Anna	M. Handy
10/28 10/30	M W	Non-Ionizing Rad Control Methods	Ch 22 DiNardi, D. Anna	M. Handy
11/04 11/06	M W	Exam 2 Review Exam 2 (11/06)	NA	NA
11/11 11/13	M W	Ionizing Radiation; Homework #3 (Due: 11/13)	Ch 22 DiNardi, D. Anna	R. Handy
11/18 11/20	M W	Design of Ionizing Radiation Controls	Ch 23 DiNardi, D. Anna	R. Handy
11/25 11/27	M W	Thermal Stresses	Ch 23 DiNardi, D. Anna	R. Handy
12/02 12/04	M W	Ergonomics (General & Industrial) Homework #4 (Due: 12/02)	Ch 24 DiNardi, D. Anna/ Ch 28 DiNardi, D. Anna	R. Handy
12/09-13	Week	Final Exam Week	NA	NA
Final Examination: To Be Announced				

1. The primary texts are The Occupational Environment: It's Evaluation, Control & Management; 2nd Ed. by DiNardi or 3rd Ed. by D. Anna.
2. The Noise Manual (NM) is a suggested reading text.

GRADING/TEXTS/EXAMS/HOMEWORK

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Grading

Grading will be based on a student's performance in the areas of exams, and homework. Grades will be assigned according to the following weighting:

- 30% - Exam I
- 30% - Exam II
- 30% - Exam III
- 10% - Homework

Grades will be assigned by the following scale:

- 94% - 100% A
- 90% - <94% A⁻
- 87% - <90% B⁺
- 84% - <87% B
- 80% - <84% B⁻

Texts and Readings:

The course syllabus specifies the topic and assignments for the class period. The texts that will be used are titled "The Occupational Environment: It's Evaluation, Control & Management; 2nd Ed. by DiNardi or 3rd Ed. by D. Anne". Suggested reading is "The Noise Manual, AIHA, 5th Ed. Class notes and reading assignments will be posted on Canvas and students are expected to read the material before the appointed class time and be ready to discuss topics and issues in class. Unannounced "Quizzes" may be given at the beginning of a class to keep you on task.

Exams:

Three exams are scheduled and each will cover topics discussed just prior to the exam. Exam I, Exam II, and the final exam (exam III) are comprehensive for all material or topics covered during the discussion period for that exam. However, basic IH concepts covered will be used throughout the semester.

Homework:

Homework will be assigned throughout the semester. All homework will have specific due dates and unless specifically excused, any assignments handed in past the due date will receive a reduced grade. All white copies of homework should be accompanied by electronic media.

Canvas:

Canvas will be used to provide students with class itinerary, lectures, reading assignments, notifications, and other class information.

ADA Statement:

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice should be given to the Center for Disability Services (CDS), 162 Olpin Union Building, 581-5020 (V/TTD). CDS will work with you and the instructor in order to make arrangements for accommodations.