

IOE/BME/MFG 534 : OCCUPATIONAL BIOMECHANICS
WINTER 2018
Department of Industrial Operations Engineering
The University of Michigan

Instructor: [Bernard J. Martin](#), Ph.D.

Office: Room G650 IOE

Phone: (734) 763-0189

Email: martinbj@umich.edu

Office hours : Monday & Wednesday **10:30 - 11:30** (change)

(IA/GSI): NONE

Office:

Phone:

Email:

Office hours : -----

Course Homepage: [Canvas](#)

Overview

The course is designed to provide a perspective on the biomechanics of work. Emphasis will be placed on understanding the static mechanics of human exertions and its relationship with musculoskeletal injury and human performance. Application of theories and methods to job analysis, the design of the work-place, and design of tools will be described and illustrated by substantial examples.

Textbooks

1. Occupational Biomechanics, 4th Edition (2006)

[Donald B. Chaffin](#) (The Univ. of Michigan, Center for Ergonomics, Ann Arbor)

Gunnar B. J. Andersson (Rush-Presbyterian-St. Lukes Medical Center, Chicago, Illinois)

[Bernard J. Martin](#) (The Univ. of Michigan, Center for Ergonomics, Ann Arbor)

Available at local and online bookstores

2. IOE 534 Coursepack

ON LINE

Home work

- Respect **Honor code** at all times (general discussion is ok but **all works are one team only or individual**)
- At least a week between assignment and due date is provided.
- As I provide feedback rapidly and exams can follow due dates, late HWs are not accepted unless extenuating circumstances are justified ahead of a due date.
- Four homework assignments. Three are team work and one is INDIVIDUAL .
- It is preferable to provide typed HWs. Poor presentation in any written material will be penalized.
- See [Schedule](#) for assignments and due dates.

Laboratory

- A lab course (IOE591-3 credit hours) is offered in support of all "Ergo" courses or any course including humans you are encouraged to take it. **Not offered every term**
- The goal of the laboratory is to illustrate the main concepts presented in formal lectures by hands-on experiments and computation examples.
- Small groups of students perform five experiments and write a technical report for each.
- No exams are given.
- Class time is approximately 3 hours per week, day and time flexible and to be determined according to student schedule.

Grading

Scale system [100-90=A+, 90-85=A, 85-80=A-, 80-75=B+, .75-70=B,....]

Team HW Projects 1,2B and 3	24%
Oral presentation of HW3	6%
Individual HW Project 2A	10%
Mid Term Exam 1	20%
Mid Term Exam 2	15%
Final Examination	25%

Exams

- Respect **Honor code** at all times
- Each exam is preceded by a brief review (come prepared to ask questions)
- Mid term exams strictly focus on material presented in the lectures preceding the exam.
- Final exam: 1 part recent course material; 1 part comprehensive (integration of material presented over the whole semester)
- If you miss (or have to miss) an exam, due to extra-ordinary circumstances, see me **in advance** or as soon as possible)

YES! everything presented can be on an exam

YES! you have to memorize a lot of material,

YES! you have to perform computations (do not forget your calculator)

YES! you have to use the appropriate vocabulary

YES! The exams are closed books

YES! A grading mistake is possible, you can submit your exam for a revision

~~Yea we can agree on something~~

EXCEPTIONS: religious holidays (let me know in advance); extenuating circumstances,

Lectures

- Everything presented is important
- Each lecture is focused on a central concept (or strongly related concepts)
- Many new words (read the book before lectures to become familiar with vocabulary and concepts)
- Interaction is encouraged