# Heat Transfer

EML 4140 Section 5964
***Class Periods:*** M,W,F | Period 8 (3:00 PM - 3:50 PM)
***Location:*** CSE E119
***Academic Term:*** Spring 2026

***Instructor:***
Dr. Jonathan Scheffe
jscheffe@ufl.edu
352-392-0839
Office Hours: T (10:00 am – 11:30am), H (11:30am – 1:00 pm), NEB 229

***Teaching Assistant/Peer Mentor/Supervised Teaching Student:***
Please contact through the Canvas website

- Braden Close - bclose1@ufl.edu
- Eli Menchetti - e.menchetti@ufl.edu
- Mingyuan Gao - mingyuan.gao@ufl.edu

***Course Description***
Steady state and transient analysis of conduction and radiation heat transfer in stationary media. Also discusses heat transfer in fluid systems, including forced and free convection.

***Course Pre-Requisites / Co-Requisites***
MAP 2302 with minimum grade of C and (EAS 4101 or EGN 3353C).

***Course Objectives***
One of the objectives of this course is for students to learn about fundamental concepts and underlying principles of thermally-driven processes that are governed by the various modes of heat transfer. A second objective is to relate the principles of heat transfer to first law analyses of energy systems to understand, solve and design problems relevant to today's technologies.

***Materials and Supply Fees***
NA

***Required Textbooks and Software***

- Fundamentals of Heat and Mass Transfer
- Bergman and Lavine
- 8th Edition
- ISBN – 9781119353881

Some course notes will be provided by the instructor

***Required Computer***
Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/
*HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/*

***Course Schedule***
Week 1: Introductory Content, Chapter 1
Week 2: Introduction to Conduction, Chapter 2
Week 3: One-Dimensional, Steady-State Conduction, Chapter 3
Week 4: One-Dimensional, Steady-State Conduction, Chapter 3
Week 5: Two-Dimensional, Steady-State Conduction, Chapter 4

Week 6: Transient Conduction, Chapter 5
Week 7: Transient Conduction, Chapter 5 / Introduction to Convection, Chapter 6
Week 8: Introduction to Convection, Chapter 6
Week 9: External Flow, Chapter 7
Week 10: External Flow, Chapter 8
Week 11: Free Convection, Chapter 9
Week 12: Heat Exchangers, Chapter 11
Week 13: Radiation: Processes and Properties, Chapter 12
Week 14: Radiation: Processes and Properties, Chapter 12/Radiation Exchange Between Surfaces, Chapter 13
Week 15: Radiation Exchange Between Surfaces, Chapter 13

- Note: the above schedule is intended only to provide a general timeline and is subject to change

***Important Dates***
***<Feb. 6th> Exam 1 (3:00 pm, CSE E119)***
***<March 6th> Exam 2 (3:00 pm, CSE E119)***
***<April 15th> Exam 3 (3:00 pm, CSE E119)***
***<April 30th> Final Exam (12:30 pm, CSE E119)***

***Evaluation of Grades***

| Assignment | Total Points | Percentage of Final Grade |
|---|---|---|
| Homework Sets | 100 | 25% |
| Midterm Exam 1 | 100 | 15% |
| Midterm Exam 2 | 100 | 15% |
| Midterm Exam 3 | 100 | 15% |
| Final Exam | 100 | 30% |
| | | 100% |

***Homework***
A series of small homework questions will be provided to complement each lecture. These will be due the evening prior to each lecture on the next day. HW assignments will be posted to Canvas, and must be submitted via the Canvas assignment portal. A total of 4 homework's will be dropped. 50% of the grade will be based on correctness and 50% based on effort. All homework must be submitted electronically as a pdf that is easily legible. Answers should be clearly indicated.

***Exams***
Three mid-term exams and one final exam will be given. Each mid-term examination is worth 15% of the course grade and the final exam is worth 30%. All exams will be graded based on the correctness of final answers, but partial credit will be given. Full credit will be given for answers that are incorrect because of previously incorrect answers (i.e. cascading effects will not be possible) but display mastery of methodology. The average of the three midterm exams may be used to replace the final exam score.

No examinations will be dropped, however one of the following two scenarios (whichever results in a greater course average) will be used to amend your final course average:

1) If the final exam score is higher than any of the three midterms, the final exam score will be used in place of the lowest midterm.
2) The standard deviation of all midterm exam scores will be taken and added to your lowest midterm exam.

All exams will be performed in-class on the dates indicated in the course schedule above. More details to follow as the semester progresses.

***Grading Policy***

The following is given as an example only.

| Percent | Grade | Grade Points |
|---|---|---|
| 93.4 - 100 | A | 4.00 |
| 90.0 - 93.3 | A- | 3.67 |
| 86.7 - 89.9 | B+ | 3.33 |
| 83.4 - 86.6 | B | 3.00 |
| 80.0 - 83.3 | B- | 2.67 |
| 76.7 - 79.9 | C+ | 2.33 |
| 73.4 - 76.6 | C | 2.00 |
| 70.0 - 73.3 | C- | 1.67 |
| 66.7 - 69.9 | D+ | 1.33 |
| 63.4 - 66.6 | D | 1.00 |
| 60.0 - 63.3 | D- | 0.67 |
| 0 - 59.9 | E | 0.00 |

***Academic Policies & Resources***

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: https://go.ufl.edu/syllabuspolicies. Instructor-specific guidelines for courses must accommodate these policies.

***Commitment to a Positive Learning Environment***

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu