

# AME 516 – Convection Processes

## Spring 2016

TTh 3:30-4:50 OHE120

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Office hours: TTh afternoons, by appointment

**Grading:** Homework: 20%  
Midterm: 35%  
Final: 45%

**Topics:**

1. Transport Processes
2. Governing equations for Heat, Momentum and Mass transfer
3. Internal Flows: Laminar Flow and Heat transfer in pipes
4. External Flows: Laminar flow, heat and mass transfer from surfaces, boundary layer methods.
5. Free Convection
6. Turbulence in pipes and boundary layers
7. Boiling

Text: *Convective Heat Transfer* by L.C. Burmeister, Wiley Interscience, New York, 1993, ISBN 0-471-57709-X

**Notes:**

Midterm will follow the return of the homework assigned for Topic 3.

Final: Tuesday, May 10: 2-4:00pm

All examinations are open book and notes.

Some topics are handled differently from the book, you are responsible for everything done in class.

No late homework will be accepted.

For on campus students, all electronic devices are to be off during class.

### **Statement on Academic Conduct and Support Systems**

#### **Academic Conduct**

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage <http://sarc.usc.edu> describes reporting options and other resources.

#### **Support Systems**

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* [http://sait.usc.edu/academicssupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicssupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.