

FIRE DYNAMICS LABORATORY ENFP 620 (3 credits)

Time: Tuesday, 3:45 – 6:00 PM

Location: JMP 1202 (Lecture), KEB 1209 (TFS Lab), JMP 3229 (Koffel Lab)

Instructor: Dr. Stanislav Stoliarov, (301)405-0928, stolia@umd.edu

Office Hours: Tuesday, 9:00 AM – 2:00 PM, JMP 3104C

Lab Supervisor: Olga Zeller, ozeller@umd.edu

Objectives: Students will perform experiments probing fire phenomena, quantify their observations through measurements, and critically analyze their results. The experiments are designed to reinforce fire science principles, explore the accuracy of theoretical relationships, and familiarize students with fire measurement techniques.

Format: A lecture day discussing relevant theory and nature of experiment will precede each laboratory day. The laboratories will be conducted by groups consisting of no more than 5 students. In some cases, collected data will be pooled for use by all groups. Data analyses and lab reports will be done individually. The lab reports will be due on Friday of the second week after the laboratory day. Attendance and participation in every laboratory and lecture period is expected.

Grading: 7 laboratories will be conducted during this course. A report will be assigned for each of these laboratories. Lab reports will be graded on a 10 point scale. The overall grade will be calculated based on the maximum of 70 points. Late lab reports will be penalized by 2 points. The reports that are late by more than 1 week will not be accepted.

Communications: Lecture summaries and lab descriptions will be posted on the Blackboard (<https://bb.eng.umd.edu/>) prior to the laboratory day.

Recommended Literature:

- Quintiere J. G., *Fundamentals of Fire Phenomena*, John Wiley & Sons, Chichester, UK, 2006.
- DiNenno P. J. (Editor-in-Chief), *SFPE Handbook of Fire Protection Engineering (Third Edition)*, National Fire Protection Association, Quincy, MA, 2002.
- Van Aken D. C., Hosford W. F., *Reporting Results: A Practical Guide for Engineers and Scientists*, Cambridge University Press, Cambridge, UK, 2008.

Special Needs: Anyone having special needs regarding disabilities, schedules, and religious conflicts, please see the instructor in private.

**FIRE DYNAMICS LABORATORY
TENTATIVE SCHEDULE**

Date	Subject
Jan 31	Lecture 1: Nonpremixed Flame Structure (JMP 1202)
Feb 7	Lab 1: Anatomy of a Candle Flame (KEB 1209)
Feb 14	Lecture 2: Data Reduction Methods; Flame Spread (JMP 1202)
Feb 21	Lab 2: Flame Spread on Paper (KEB 1209)
Feb 28	Lecture 3: Temperature Measurement (JMP 1202)
Mar 6	Lab 3: Air Temperature Measurement using Thermocouples (JMP 3229)
Mar 13	Lecture 4: Ignition of Liquids and Solids (JMP 1202)
Mar 27	Lab 4: Ignition of Liquids and Solids (JMP 3229)
Apr 3	Lecture 5: Burning Rate (JMP 1202)
Apr 10	Lab 5: Burning Rate of Pool Fires (JMP 3229)
Apr 17	Lecture 6: Compartment Fire Project (JMP 1202)
April 24	Discussion: Compartment Fire Project (JMP 1202)
May 1	Lab 6: Compartment Fire Experiment Setup (JMP 3229)
May 8	Lab 7: Compartment Fire Experiment (JMP 3229)