

# AME 513

## Principles of Combustion

Fall 2015, OHE 100C, F 9:00-11:50 am

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### References:

1. Combustion Physics, by C.K. Law, 1<sup>st</sup> Edition, Cambridge University Press, 2006, (required).
2. Unpublished notes updated yearly, by C.K. Law & F.N. Egolfopoulos (will be provided).
3. Combustion Theory, by Forman A Williams, 2<sup>nd</sup> Edition, Addison-Wesley, 1985.
4. Combustion, Flames, and Explosions of Gases, by Bernard Lewis and Guenther von Elbe, 3<sup>rd</sup> Edition, Academic Press, 1987.
5. Combustion, by Irvin Glassman, 3<sup>rd</sup> Edition, Academic Press, 1996.
6. An Introduction to Combustion, Concepts and Applications, by Stephen R. Turns, 2<sup>nd</sup> Edition, McGraw-Hill, 2000.
7. Molecular Theory of Gases and Liquids, by Joseph O. Hirschfelder, Charles F. Curtiss, and R. Byron Bird, 2<sup>nd</sup> Edition, John Wiley & Sons, 1963.
8. Physical Chemistry, by P.W. Atkins, 4<sup>th</sup> Edition, W.H. Freeman and Company, New York, 1990.
9. Chemical Kinetics, by Keith Laidler, 3<sup>rd</sup> Edition, Harper and Row, 1987.
10. Chemical Kinetics of Gas Reactions, by V.N. Kondrat'ev, Pergamon Press, 1964.
11. Physical Chemistry of Fast Reactions, Volume 1, Gas Phase Reactions of Small Molecules, edited by B.P. Levitt, Plenum Press, 1973.
12. Thermochemical Kinetics, by Sidney W. Benson, John Wiley & Sons, 1968.

### Topics:

Introduction  
Chemical Thermodynamics  
Chemical Kinetics  
Transport Phenomena  
Conservation Equations  
Non-Premixed Flames  
Premixed Flames  
Aerodynamics of Laminar Flames  
Environmental Combustion Considerations

<b>Grading:</b>	Midterm Exam	October 16 (F)	(9:15 am-10:45 am)	35%
	Final Exam	December 14 (M)	(11:00 am-1:00 pm)	45%
	Homework			20%

**Note:** The use of laptops or cell phones to access the internet/e-mail during class and/or exams is not allowed. Such devices are allowed only to access material pertaining to the class.