

# NIU Course Syllabus for Physics 320

## THERMODYNAMICS AND STATISTICAL PHYSICS

**Spring Semester, 2015, Tuesday and Thursdays, 12:30-1:45 pm**

**Class room:** FR237

**Instructor:** Yasuo Ito. La Tourette 218 and/or 101 (Electron Microscopy Lab)

Tel: 815-753-6477

e-mail: [yito@niu.edu](mailto:yito@niu.edu) (preferred)

**Office Hours:** Tuesdays, Thursdays, and Fridays 2:00 pm – 3:00 pm; Other hours by an appointment.

**Prerequisites :** MATH 232 and PHYS 260 or PHYS 261 or PHYS 283.

**Credits:** 3

**Text book:** Classical and Statistical Thermodynamics, A. H. Carter (required). Other references such as “*Heat and thermodynamics*” by Zemansky (out of print).  
Please read your textbook before coming to the class!!

**The view graphs, homework assignments and their solutions will be posted on the Blackboard web course. Therefore, it is essential for you to familiarize with the Blackboard web course.**

**Grading (tentative):**

**5% Attendance.** Attendance is **MANDATORY**. A student will receive attendance points if the student attends more than or equal to 85% of the course (25 out of 30 classes), according to the attendance rate. Perfect attendance will receive extra credit points. Students will not receive attendance points if he/she misses 6 - 9 classes. Students will receive **Negative** attendance points if he/she misses class more than 9 classes, (-1/class).

**40% Homework** **ESSENTIAL** Due one week of posting (Late penalty policy: 10% off)

**25% Midterm Exams** **Tuesday February 17th and March 24<sup>th</sup> in class.**

**30% Final Exam** (comprehensive) **Thursday May 7th, Noon – 1:50 pm.**

To pass this course, you must score at least **50% on the homework** **AND** at least **50% overall.**

**Grading scale:**

A ( $90 \leq x$ ), A- ( $85 \leq x < 90$ ), B+ ( $80 \leq x < 85$ ), B ( $75 \leq x < 80$ ), B- ( $70 \leq x < 75$ ), C+ ( $65 \leq x < 70$ ), C ( $55 \leq x < 65$ ), D ( $50 \leq x < 55$ ), F ( $x < 50$ ).

**Grade points** (assigned by University):

A (4.00), A- (3.67), B+ (3.33), B (3.00), B- (2.67), C+ (2.33), C (2.00), D (1.00), F (0.00).

**(Tentative schedule)** *subject to change, depending on the progress of the class*

**0: Introduction to the course** January 13, 2015.

**1: The Nature of Thermodynamics** January 15, 2015

**2: Equations of State** (and a bit of 11: *The Kinetic Theory of Gases*)

**3: The First Law of Thermodynamics** (and Appendix A)

**4: Applications of the First Law**

**Mid-Term I:** February 17<sup>th</sup>, Final due date for Homework Ch1, Ch2, Ch3, A1, Ch4

**5: Consequences of the First Law**

**6: The Second Law of Thermodynamics**

**7: Applications of the Second Law**

**Mid-Term II:** March 24<sup>th</sup>, Final due date for Homework Ch5, Ch6, Ch7

**8: Thermodynamic Potentials**

**9: Chemical Potential and Open Systems**

**10: The Third Law of Thermodynamics**

**(12: *Statistical Thermodynamics*)**

**May 3<sup>rd</sup>,** Final due date for Homework Ch8, Ch9, Ch10

**Final Exam** (Thursday, May 7th, 2013, Noon – 1:50 pm)

*Accessibility Statement*

*Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 (V) or [drc@niu.edu](mailto:drc@niu.edu).*