Course Syllabus

SCPY504 Thermodynamics and Statistical Physics

2nd Semester of 2019-20 Academic yr. **Wednesday SCPY MSC-PHD** (9.00AM-12.00 PM)

Course coordinator:

Assoc. Prof. Wannapong Triampo, Room SC3-R3/1, (02) 441-9817 ext. 1131, 098-824-0430

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Instructor: Assoc. Prof. Wannapong Triampo

Course code: SCID 183 3 (3-0-6) (Lecture-Lab-Self-study) (General Education)

Academic semester: 2nd Semester of 2019-20 Academic yr.

Office Hours: Wednesday 12:30-1:30 PM and by appointment.

Course description

Statistics of systems of particles, statistical thermodynamics, macroscopic properties, applications of thermodynamics, ensemble theory, phase equilibrium, systems of interacting particles, kinetic theory of trasport process, quantum statistics, Fermi systems, Dirac systems

Recommended Texts:

Statistical Mechanics, R. K. Pathria, P. D. Beale; Elsevier, 3rd Ed. (2011)

COURSE WEB SITE: The primary electronic means of individual communication for this course is email. However, we will also use a site for general course information called which is located at ***http://www.ilearnsci.com***
If we change to use this site also as the major site for individual electronic communication, we shall notify all registered students in class and via email.

Teaching method:

1. Active lecture
2. Group assignment and discussion
3. PBL (or other kinds of active learning approach)

4. Self-learning

Teaching Media:

1. Paper or hard copy teaching based teaching media such as books and handouts
2. Electronics based teaching media such as ppt, e-book, e-journal, and games
3. Internet-based teaching media such as websites, Facebook, or other social media

Measurement and evaluation of student's achievement (tentative):

Your grade will be determined according to the following distribution. (Part of the homework grade may be based on work done in class.):

Class participation –	5%
Homework or assignment -	15%,
Project -	10%,
Midterm & Final examination-	70 %.

Tentative grading criterion (tentative):

85-100	A	75-84	B+	65-74	B	56-64	C+
50-55	C	40-49	D+	30-39	D	Below 30	F

EXAMINATIONS:

All exams are closed book and there will be no make-up exam in this course. A missed exam probably will prevent you from passing unless you have approval from your professor before the exam because of an extreme emergency.

ACADEMIC INTEGRITY:

It is particularly important that you are aware of and avoids plagiarism, cheating on an examination, fabricating data for a project assignment, submitting a paper to more than one professor, or submitting work authored by anyone but yourself. Violations will result in penalties, which may be severe such as resulting in a failing grade in the course, and will be reported to the Office of Student Conduct. If you have doubts about any of these policies, you must confer with the professor.

PROPOSED SCHEDULE (Tentative):

Week	Date (the Year 2020)	Topic	Instructor/ Supporting Staff/ TA
1	15 Jan	- Course orientation - The Statistical Basis of Thermodynamics	Dr. Wannapong and team
2	22 Jan	- The Statistical Basis of Thermodynamics	
3	29 Jan	- Elements of Ensemble Theory	
4	5 Feb	- The Canonical Ensemble	
5	12 Feb	- The Canonical Ensemble	
6	19 Feb	- The Grand Canonical Ensemble	
7	26 Feb	- Formulation of Quantum Statistics	
8	4 March	- Formulation of Quantum Statistics	
9	11 March	- Midterm	
10	18 March	- The Theory of Simple Gases	
11	25 March	- The Theory of Simple Gases	
12	1 April	- Ideal Bose Systems	
13	8 April	- Ideal Fermi Systems	
14	15 April	- Phrase Transitions: Criticality, Universality, and Scaling	
15	22 April	- Phrase Transitions: Criticality, Universality, and Scaling	
16	29 April	- Applications of statistical mechanics	
17	6 May	- Applications of statistical mechanics	
18	13 May	- Applications of statistical mechanics	
19	20 May	**FINAL EXAM**	