

Trial course number should be 494.

FORMAT 1

F494

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See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:

Department	Physics	College/School	CNSM
Prepared by	C. P. Price	Phone	x6106

1. ACTION DESIRED (CHECK ONE):

Trial Course

New Course

10. COMPLETE CATALOG DESCRIPTION including date, number, title and credits (50 words or less)

[REDACTED]

[REDACTED]

18. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

Physics Department is converting a 4-credit course PHYS 313 "Thermodynamics and Statistical Physics" to two 2-credit courses. There is thus no net impact on budget facilities/space faculty etc

19. LIBRARY COLLECTIONS

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

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Signature, Chair, UAF Faculty Senate Curriculum Review Committee

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

	Date
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Signature, Chair, Program/Department of:

	Date
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Signature, Chair, College/School Curriculum Council for:

	Date
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Signature, Dean, College/School of:

Statistical Physics

PHYSICS 493 – Spring 2013

Syllabus

Instructor: TBD

Office Hours: TBD

Class meets: 9:15 - 10:15am, Wednesday and Friday

Credits: 2 credits.

Prerequisites: PHYS 301, PHYS 302, PHYS 321, PHYS 322, PHYS 323, PHYS 324, PHYS 325, PHYS 326, PHYS 327, PHYS 328, PHYS 329, PHYS 330, PHYS 331, PHYS 332, PHYS 333, PHYS 334, PHYS 335, PHYS 336, PHYS 337, PHYS 338, PHYS 339, PHYS 340, PHYS 341, PHYS 342, PHYS 343, PHYS 344, PHYS 345, PHYS 346, PHYS 347, PHYS 348, PHYS 349, PHYS 350, PHYS 351, PHYS 352, PHYS 353, PHYS 354, PHYS 355, PHYS 356, PHYS 357, PHYS 358, PHYS 359, PHYS 360, PHYS 361, PHYS 362, PHYS 363, PHYS 364, PHYS 365, PHYS 366, PHYS 367, PHYS 368, PHYS 369, PHYS 370, PHYS 371, PHYS 372, PHYS 373, PHYS 374, PHYS 375, PHYS 376, PHYS 377, PHYS 378, PHYS 379, PHYS 380, PHYS 381, PHYS 382, PHYS 383, PHYS 384, PHYS 385, PHYS 386, PHYS 387, PHYS 388, PHYS 389, PHYS 390, PHYS 391, PHYS 392, PHYS 393, PHYS 394, PHYS 395, PHYS 396, PHYS 397, PHYS 398, PHYS 399, PHYS 400, PHYS 401, PHYS 402, PHYS 403, PHYS 404, PHYS 405, PHYS 406, PHYS 407, PHYS 408, PHYS 409, PHYS 410, PHYS 411, PHYS 412, PHYS 413, PHYS 414, PHYS 415, PHYS 416, PHYS 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PHYS 421; or permission of instructor.

Text: Intro. to Statistical Mechanics, by Bowley and Sanchez, Oxford, 2nd ed; ISBN 978-0198517948

Topics: The canonical ensemble; maximizing entropy, the partition function and Helmholtz free energy, the harmonic oscillator, Einstein and Debye solids, classical systems and the ideal gas, diatomic molecules, equipartition theorem, the photon gas and the blackbody spectrum, the grand canonical ensemble, quantum statistics, Fermion and Boson systems.

Grading: The course grade will be based upon the following weighting:

Participation in Recitation	10%
Homework	20%
Final Exam	40%

Learning Outcomes: Students who complete PHYS 402 will understand the concept of the ensemble

in the construction of the statistical mechanics, will appreciate the connection between the equilibrium distribution, the condition of maximum entropy, and the canonical ensemble, will understand the construction and use of the partition function, will be able to calculate the classical thermodynamics of the ideal gas from the free particle partition function, will have been exposed to advanced topics such