

SEP 12 2014

FORMAT 1

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (Box 7500). See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> 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	(907)474-6106
Email Contact	cpprice@alaska.edu	Faculty Contact	C. P. Price

1. ACTION DESIRED (CHECK ONE): Trial Course  New Course

2. COURSE IDENTIFICATION: Dept **PHYS** Course # **472Z** No. of Credits **1**

Justify upper/lower division status & number of credits: Prerequisites for this course include PHYS 301. This course will meet for fourteen hours.

3. PROPOSED COURSE TITLE: **Advanced Topics in Physics II: Current Topics in Physics**

4. To be CROSS LISTED? YES/NO  No If yes, Dept:  Course #

NOTE: Cross-listing requires approval of both departments and deans involved. Add lines at end of form for additional required signatures.

5. To be STACKED? YES/NO  No If yes, Dept.  Course #

How will the two course levels differ from each other? How will each be taught at the appropriate level?:

Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi – undergraduate and graduate versions – will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online – see URL at top of this page.

6. FREQUENCY OF OFFERING: **Fall, Spring**  
Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) – or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (AY2013-14 if approved by 3/1/2013; otherwise AY2014-15) **AY2015-16**

**8. COURSE FORMAT:**

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, **any core course compressed to less than six weeks must be approved by the Core Review Committee.**

COURSE FORMAT:  1  2  3  4  5  6 weeks to full semester  
 OTHER FORMAT (specify) \_\_\_\_\_  
 Mode of delivery (specify lecture, field trips, labs, etc) \_\_\_\_\_

9. CONTACT HOURS PER WEEK: **3** LECTURE hours/weeks **0** LAB hours/week **0** PRACTICUM hours/week

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for more information on number of credits.

OTHER HOURS (specify type) \_\_\_\_\_

RECEIVED

SEP - 8 2014

Dean's Office  
College of Natural Science & Mathematics

Governance  
9/10/14 TLP

10. **COMPLETE CATALOG DESCRIPTION** including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):

Example of a **complete** description:

FISH F487 W, O Fisheries Management

3 Credits Offered Spring

Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor. Cross-listed with NRM F487. (3+0)

The advanced topics modules provide expanded exposure to modern subjects in physics. Three topics are offered each semester, providing breadth beyond the core subjects of the Physics undergraduate curriculum. This course will present the most current material from one particular topic in Physics, to be determined at the time of the offering. Students are expected to have familiarity with the core subjects in the field (classical mechanics, electromagnetism, statistical physics, quantum mechanics.) (Prerequisites: PHYS 220; PHYS 301.)

11. **COURSE CLASSIFICATIONS:** Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.

H = Humanities

S = Social Sciences

Will this course be used to fulfill a requirement for the baccalaureate core? If YES, attach form.

YES:

NO:

X

IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, Format 6

W = Writing Intensive, Format 7

X = Baccalaureate Core

11.A Is course content related to northern, arctic or circumpolar studies? If yes, a

“snowflake” symbol will be added in the printed Catalog, and flagged in Banner.

YES

NO

12. **COURSE REPEATABILITY:**

Is this course repeatable for credit?

YES

X

NO

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

Course follows a different theme each time.

How many times may the course be repeated for credit?

2

TIMES

If the course can be repeated for credit, what is the maximum number of credit hours that may be earned for this course?

2

CREDITS

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?

CREDITS

13. **GRADING SYSTEM:** Specify only one. Note: Changing the grading system for a course later on constitutes a Major Course Change - Format 2 form.

LETTER:

X

PASS/FAIL:

**RESTRICTIONS ON ENROLLMENT (if any)**

14. **PREREQUISITES**

PHYS 220; PHYS 301.

These will be required before the student is allowed to enroll in the course.

15. **SPECIAL RESTRICTIONS, CONDITIONS**

16. **PROPOSED COURSE FEES**

\$

Has a memo been submitted through your dean to the Provost for fee approval?

Yes/No

17. **PREVIOUS HISTORY**

Has the course been offered as special topics or trial course previously? Yes/No

No

If yes, give semester, year, course #, etc.:

**18. ESTIMATED IMPACT**

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

**No impact. The department currently schedules and staffs three 'modules' per semester; the proposed course would substitute for another module.**

**19. LIBRARY COLLECTIONS**

Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No  Yes

**Need is yet to be determined, but presumably can be met.**

**20. IMPACTS ON PROGRAMS/DEPTS**

What programs/departments will be affected by this proposed action?  
Include information on the Programs/Departments contacted (e.g., email, memo)

[Empty box for program/departments affected]

**21. POSITIVE AND NEGATIVE IMPACTS**

Please specify **positive and negative** impacts on other courses, programs and departments resulting from the proposed action.

**Positive impact: the physics undergraduate program develops breadth through the offering of PHYS 471-472 'modules'. However, there is no present mechanism to allow the department to rapidly offer a new module e.g. due to the opportunity of a distinguished visitor. This course provides a socket for such offerings. No negative impacts.**

**JUSTIFICATION FOR ACTION REQUESTED**

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

**The physics undergraduate program develops breadth at the advanced level through the offering of PHYS 471-472 'modules'. However, there is no present mechanism to allow the physics department to rapidly offer a new module e.g. due to the opportunity of a distinguished visitor. This course provides a socket for such offerings. Approval of this course will allow the physics department to better serve our students by providing exposure to the most current topics in the field and to such distinguished visitors.**

**APPROVALS: Add additional signature lines as needed.**

	Date	8 Sep 2014
Signature, Chair, Program/Department of:		Physics

(see attached)	Date	
Signature, Chair, College/School Curriculum Council for:		

	Date	9/5/14
Signature, Dean, College/School of:		ENSM

**Offerings above the level of approved programs must be approved in advance by the Provost.**

	Date	
Signature of Provost (if above level of approved programs)		



**18. ESTIMATED IMPACT**

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

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**APPROVALS: Add additional signature lines as needed.**

[Signature line] Date [ ]  
Signature, Chair, Program/Department of: [ ]

[Signature] Date 9/8/14  
Signature, Chair, College/School Curriculum Council for: [ ]

[Signature line] Date [ ]  
Signature, Dean, College/School of: [ ]

Offerings above the level of approved programs must be approved in advance by the Provost.

[Signature line] Date [ ]  
Signature of Provost (if above level of approved programs)

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

	Date	
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Signature, Chair

Faculty Senate Review Committee: \_\_\_ Curriculum Review \_\_\_ GAAC

\_\_\_ Core Review \_\_\_ SADAC

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

	Date	
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Signature, Chair, Program/Department of:

	Date	
--	------	--

Signature, Chair, College/School Curriculum Council for:

	Date	
--	------	--

Signature, Dean, College/School of:



**ATTACH COMPLETE SYLLABUS (as part of this application).** This list is online at:

<http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/uaf-syllabus-requirements/>

The Faculty Senate curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course (or changes to it) may be denied.

#### **SYLLABUS CHECKLIST FOR ALL UAF COURSES**

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

##### **1. Course information:**

☐ Title, ☐ number, ☐ credits, ☐ prerequisites, ☐ location, ☐ meeting time  
(make sure that contact hours are in line with credits).

##### **2. Instructor (and if applicable, Teaching Assistant) information:**

☐ Name, ☐ office location, ☐ office hours, ☐ telephone, ☐ email address.

##### **3. Course readings/materials:**

☐ Course textbook title, ☐ author, ☐ edition/publisher.  
☐ Supplementary readings (indicate whether ☐ required or ☐ recommended) and  
☐ any supplies required.

##### **4. Course description:**

☐ Content of the course and how it fits into the broader curriculum;  
☐ Expected proficiencies required to undertake the course, if applicable.  
☐ Inclusion of catalog description is *strongly* recommended, and  
☐ Description in syllabus must be consistent with catalog course description.

##### **5. ☐ Course Goals (general), and (see #6)**

##### **6. ☐ Student Learning Outcomes (more specific)**

##### **7. Instructional methods:**

☐ Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

##### **8. Course calendar:**

☐ A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

##### **9. Course policies:**

☐ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

##### **10. Evaluation:**

☐ Specify how students will be evaluated, ☐ what factors will be included, ☐ their relative value, and ☐ how they will be tabulated into grades (on a curve, absolute scores, etc.) ☐ Publicize UAF regulations with regard to the grades of "C" and below as applicable to this course. (Not required in the syllabus, but is a convenient way to publicize this.) Link to PDF summary of grading policy for "C":

[http://www.uaf.edu/files/uafgov/Info-to-Publicize-C Grading-Policy-UPDATED-May-2013.pdf](http://www.uaf.edu/files/uafgov/Info-to-Publicize-C%20Grading-Policy-UPDATED-May-2013.pdf)

##### **11. Support Services:**

☐ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

**12. Disabilities Services:** Note that the phone# and location have been **updated**. <http://www.uaf.edu/disability/> The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials.

☐ State that you will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655) to provide reasonable accommodation to students with disabilities.

5/21/2013

- CURRENT TOPICS IN PHYSICS -

PHYSICS 472Z - Syllabus

Spring 2015

**Instructor :** Channon Price, x6106, [cpprice@alaska.edu](mailto:cpprice@alaska.edu)

**Office hours :** *Days, time(s)* TBD

**Class hours :** MWF 1-2pm ; REIC TBD

**Prerequisites :** PHYS 220; PHYS 301.

**Texts :** To be determined.

**Description :** The advanced topics modules provide expanded exposure to modern subjects in physics. Three topics are offered each semester, providing breadth beyond the core subjects of the Physics undergraduate curriculum. This course will present the most current material from one particular topic in Physics, to be determined at the time of the offering. Students are expected to have familiarity with the core subjects in the field (classical mechanics, electromagnetism, statistical physics, quantum mechanics.) (Prerequisites: PHYS 220; PHYS 301.)

**Grading :** 1 credit. Homework (30%); class project (30%); final exam (30%); class participation (10%). The course will be graded on absolute scores (90-100: A, 80-89: B, 70-79: C, 60-69, D; below 60, F) and will not be graded plus/minus.

**Schedule :** See the attached course schedule.

**Instructional** Lecture based course.

**Methods :**

**Course** It is against the UAF Honor Code to misrepresent work which is not your own; plagiarism on

**Policies :** any graded material will result in a failing grade. The instructor will check submitted work against available documents.

**Learning** Students who complete this module will become familiar with present status and ongoing

**Outcomes :** research directions in this sub-field of Physics. They will become acquainted with current paradigms, and by working with toy models, they will develop an understanding of the successes in the sub-field, of current research goals, and of expectations for future progress.

**Support** Students may consult with the instructor during office hours for help with the course.

**Services :** Typically, there are no tutors available on campus who can assist with 400-level Physics courses.

**Disability** The Physics Department will work with the Office of Disabilities Services (208 WHIT, x5655)

**Services :** to provide reasonable accomodation to students with disabilities.

## Tentative PHYS 472Z Course Schedule

### Lecture 1: Introduction

Foundational material: placement into the larger context of the field of Physics; historical results; impetus for recent developments and breakthroughs

### Lectures 2 and 3: Primer

Beginning at a level accessible to a fourth-year student, a 'sandbox' is developed using paradigms and toy models which will be the vehicles for the remainder of the course.

### Lectures 4, 5, 7, and 8: Current Status

Working within the 'sandbox' of the paradigms and toy models developed in the previous lectures, the recent developments and breakthroughs of the sub-field are presented. (Ordering and selection of material for this and the following lecture will take into consideration the need for students to choose a class project by the end of the second week of the course.)

### Lecture 6: Discussion and Selection of Class Projects

Suggestions for viable project topics; discussions of student ideas for projects; expectations for level and degree of project complexity

### Lecture 9: Impacts on the Field

New developments in Physics cause repercussions both directly in the sub-field and more broadly throughout the field. How have the advances and breakthroughs in this area affected our physical thinking?

### Lectures 10 and 11: Future Directions and Potential Results

What are current research goals in this topic? Based on present status and ongoing research programs, what might be expected in the future in the near- and middle-term?

### Lectures 12 and 13: Class Projects

Student presentation of projects and seminar-style discussion.

### Lecture 14: Final exam