University of Wisconsin-Whitewater

Curriculum Proposal Form #3

## New Course

**Effective Term:**

**Subject Area - Course Number:** **PHYSICS 291 Cross-listing:** **N/A**

(See Note #1 below)

**Course Title:** (Limited to 65 characters) PHYSICS RECITATIONS II

**25-Character Abbreviation:** PHYSICS RECITATIONS II

**Sponsor(s):** Abdelkrim Boukahil

**Department(s):** Physics

**College(s):**

# **Consultation took place**: NA Yes (list departments and attach consultation sheet)

Departments:

**Programs Affected:** **Physics**

**Is paperwork complete for those programs?** (Use "Form 2" for Catalog & Academic Report updates)

NA  Yes  will be at future meeting

**Prerequisites:** PHYSCS 290 or consent of instructor.

**Grade Basis:**  Conventional Letter  S/NC or Pass/Fail

**Course will be offered:**  Part of Load  Above Load

On Campus  Off Campus - Location

**College:**  **Dept/Area(s):** Physics

**Instructor:** Abdelkrim Boukahil

*Note: If the course is dual-listed, instructor must be a member of Grad Faculty.*

**Check if the Course is to Meet Any of the Following:**

Technological Literacy Requirement  Writing Requirement

Diversity  General Education Option:

Note: For the Gen Ed option, the proposal should address how this course relates to specific core courses, meets the goals of General Education in providing breadth, and incorporates scholarship in the appropriate field relating to women and gender.

**Credit/Contact Hours:** (per semester)

Total lab hours: 0 Total lecture hours: 16

Number of credits: 1 Total contact hours: 16

**Can course be taken more than once for credit? (Repeatability)**

No  Yes If "Yes", answer the following questions:

No of times in major:       No of credits in major:

No of times in degree:       No of credits in degree:

Proposal Information: ([***Procedures for form #3***](http://acadaff.uww.edu/UCC/Curriculum_Handbook_09/Procedures_form3.docx))

**Course justification:**

This is a continuation of the topics developed in PHYSCS 290 and students who may struggle in PHYSICS 181 are encouraged to take this course. The skills in simple differentiation and integration provided by the usual calculus courses are seldom sufficient for solving problems in Physics. In these two one-credit courses we address the problems of inadequate Mathematical background. Mathematics is the language of physics and we emphasize the techniques that have proved to be useful in analyzing problems in Physics.

**Relationship to program assessment objectives:**

This course will give the students experience in solving real life problems using familiar concepts and techniques. A student who completed this course will certainly have acquired an in-depth view of the world of applied sciences

**Budgetary impact:**

NONE

This course will be part of the Physics faculty regular load.

**Course description:** (50 word limit)

**PHYSCS 291 PHYSICS RECITATIONS** **II 1u**

Topics include partial derivatives, increments, and total derivatives: application to force and potential energy, linear momentum, angular momentum and the dynamics of systems, integrals in two and three dimensions: application to the dynamics of rigid bodies including rotations and forces in equilibrium. One-hour lecture per week.

Prereq: PHYSCS 290 or consent of instructor.

**If dual listed, list graduate level requirements for the following:**

1. **Content** (e.g., What are additional presentation/project requirements?)

2. **Intensity** (e.g., How are the processes and standards of evaluation different for graduates and undergraduates? )

3. **Self-Directed** (e.g., How are research expectations differ for graduates and undergraduates?)

**Course objectives and tentative course syllabus:**

**Bibliography:** (Key or essential references only. Normally the bibliography should be no more than one or two pages in length.)

**1. Mathematical Methods for Scientists and Engineers, L. P. Smith, Dover, 1961.**

**2. Mathematical Methods in Engineering and Physics, D. Johnson and J. Johnson,**

**Prentice Hall, 1982.**

**3. Mathematical Methods of Physics 2nd Ed., J. Mathews and R. Walker,**

**Benjamin/Cummings, 1970.**

**4. Mathematics of Classical and Quantum Physics, F. Byron Jr. and R. Fuuler, Dover,**

**1992.**

**5. Boundary and Eigenvalue Problems in Mathematical Physics, Hans Sagan, Dover, 1989.**

**6. Mathematical Physics, Butkov, Addison-Wesley, 1968.**

**Course Objectives and tentative course syllabus** with [mandatory information](http://www.uww.edu/acadaff/UCC/Mandatory_Info_Course_Syllabi.docx)(paste syllabus below):

**Syllabus**

**Physics 291: Physics RECITATIONS II**

**Spring 2011**

###### W: 1:10 – 2:00 PM, UH 141

## Instructor: A. Boukahil

**Office: Upham: 153**

**Telephone: 262-472-1080**

**Office hours: T & R: 1:00 – 3:00 p.m.**

**W: 12:00 Noon – 1:00 p.m.**

**All other times, by appointment only.**

**E-mail:** [boukahia@uww.edu](mailto:boukahia@uww.edu)

**Course Description:**

**PHYSCS 291 PHYSICS RECITATIONS II 1u**

Topics include partial derivatives, increments, and total derivatives: application to force and potential energy, linear momentum, angular momentum and the dynamics of systems, integrals in two and three dimensions: application to the dynamics of rigid bodies including rotations and forces in equilibrium.

Prereq: PHYSCS 290 or consent of instructor.

**No Textbook** is required for this course. Notes will be distributed in class.

**Tentative Schedule:**

**Weeks 1-2: Application of partial derivatives to conservative systems (Force-Potential)**

**Weeks 3-4: Application of partial derivatives to chaotic systems**

**Weeks 5-6: Application of partial derivatives to the dynamics of systems**

**Weeks 7-8: Application to forces in equilibrium**

**Weeks 9-10: Application to Gravitation and Planetary Motion**

**Weeks 11-12: Application to the Rotation and Dynamics of Rigid Bodies**

**Attendance:**

Class attendance is expected. Students are **responsible** for assignments if they do miss any class period.

**Grading:**

The grade in this course will be distributed as follows:

• Homework assignments count **80%**. The problems will be assigned every week in class and will be due one week later. You are encouraged to start working on your homework assignment immediately. The work you submit for grading must be your own not someone else’s.

• A total of five (05) short quizzes will count **20%** of the total grade.

• There is no final Exam for this one credit course, but we will have a regular lecture on Wednesday May (date) , 2010.

**This course is being offered Pass (S – satisfactory) / No Credit (NC)**

**Grades: (in %) > 70% S**

**< 70% NC**

##### UWW Policies

**Special needs statement:** Students with special needs should contact the instructor to make appropriate arrangements.

The University of Wisconsin-Whitewater is dedicated to a safe, supportive and non-discriminatory learning environment. It is the responsibility of all undergraduate and graduate students to familiarize themselves with University policies regarding [Special Accomodations](http://www.uww.edu/Bulletin/Legal/legal6.html#Disability), [Misconduct](http://www.uww.edu/bulletin/Legal/index.html#Misconduct), [Religious Beliefs Accomodation](http://www.uww.edu/bulletin/Legal/legal5.html), [Discrimination](http://www.uww.edu/bulletin/Legal/legal6.html) and [Absence for University Sponsored Events](http://www.uww.edu/bulletin/Legal/index.html#Absence). (For details please refer to the Undergraduate and Graduate Timetables; the [Rights and Responsibilities](http://www.uww.edu/bulletin/Legal/index.html#Rights) section of the [Undergraduate Bulletin](http://www.uww.edu/bulletin/introub.html); the [Academic Requirements and Policies](http://www.uww.edu/gradstudies/policies.htm%20#requirements) and the [Facilities and Services](http://www.uww.edu/gradstudies/policies.htm%20#services) sections of the [Graduate Bulletin](http://www.uww.edu/gradstudies/bulletin.htm); and the [Student Academic Disciplinary Procedures](http://www.uww.edu/stdhdbk/uwsystem.html#BM14) [UWS Chapter 14]; and the [Student Nonacademic Disciplinary Procedures](http://www.uww.edu/stdhdbk/uwsystem.html#BM17) [UWS Chapter 17].)