

**DEPARTMENT OF PHYSICS AND ASTRONOMY  
TRENT UNIVERSITY**

**PHYS 2090Y: PHYSICAL SCIENCE FOR TEACHER EDUCATION  
2012-13 FW  
PETERBOROUGH**

<b>Instructor:</b> Johann Beda	<b>Email:</b> <a href="mailto:jbeda@trentu.ca">jbeda@trentu.ca</a>	<b>Telephone:</b> 748-1011 x7279
<b>Campus:</b> Peterborough	<b>Office Location:</b> SC 318 or SC 326	<b>Office Hours:</b> By Appointment

<b>Departmental Secretary:</b> Gina Collins	<b>Email:</b> <a href="mailto:physics@trentu.ca">physics@trentu.ca</a>
<b>Office Location:</b> SC 327	<b>Telephone:</b> 748-1011 7715

<b>Teaching Assistant:</b> Jeffrey Philippon	<b>Email:</b> <a href="mailto:jeffreypilippson@trentu.ca">jeffreypilippson@trentu.ca</a>
<b>Teaching Assistant:</b>	<b>Email:</b>

**Course Description:** This is a hands-on, lab course designed to meet the needs of future elementary teachers. We meet for a three hour session each class. We cover selected topics taken from or related to the Ontario Curriculum for grades 1-8 where basic concepts are often misunderstood; these may be taken from Light, Electricity, Motion, and Forces. Students will work with their classmates to investigate physical systems and develop their own models to explain how they work, and refine those models through guided activities and group and classroom discussions.

**Course Pre-requisites:** None. Students majoring in a physical science or maths are excluded. It is assumed that all students plan to become elementary school teachers.

**Course Fees:** \$35 printing and lab resources fee. Make cheques payable to “Trent Univeristy Department of Physics and Astronomy”. If you need a receipt, attach a note to your payment with your name, Trent email address, and student number.

**Course Format:**

Please check <http://www.trentu.ca/admin/mytrent/Timetable/TimeTableGen0.htm> to confirm times and locations.

Type	Day	Time	Location
Lab Section A	Thursday	09:00 -12:00	SC 305
Lab Section B	Thursday	13:00 -16:00	SC 305

**Course Evaluation:**

Course activities include: daily hands-on lab exercises, worksheets and classroom participation; daily homework assignments; daily personal journal entries; essay style assignments; three quizzes; and a final exam.

Note: departmental policy requires that a minimum of 35% must be obtained on the quiz and final exam components to pass this course. If not, a course grade of 45% is the maximum that can be assigned.

Detailed weightings were decided by the class after the start of the course.

Type of	Weighting	Due Date
Labs (drop lowest)	29%	in class, that day
Homework (drop lowest)	13%	in class, next class
Journals + Participation	8% + 2%	in class, that day
Assignments (three)	21%	approx Oct, Feb, April
Quizzes (three)	15%	approx Dec, Feb, April
Final Exam	12%	exam period in April
<b>Total</b>	<b>100%</b>	

The mid-course grade (which does not impact the final grade) will be calculated based on the weightings of all graded materials up to that point, converted to a percentage. Thus, for seven homework assignments, seven labs, one assignment and one quiz available for the calculation, the weightings as above would give a score as follows:

29 x (7/15) - Labs

13 x (7/15) - Homework

21 x (1/3) - Assignments

15 x (1/3) - Quiz

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31.6000 - Total

**Required Texts:** (Provided in class upon payment of fee)

Title: *Powerful Ideas in Physical Science*

Author: American Association of Physics Teachers

**MyLearningSystem:** Online resources are available including audio/video files, review exercises, class discussion forums, course calendar, and online assignment submissions. Access to this system is required for some aspects of the course. Some material may also be available at

<http://www.trentu.ca/physics/jbeda/PHYS2090Y/>

**Department and/or Course Policies:**

Departmental policy requires that a minimum of 35% must be obtained on the quiz and final exam components to pass this course. If not, a course grade of 45% is the maximum that can be assigned.

Due to the nature of the course activities, group work, and equipment and space limitations, there are no simple ways to make up for missed in-class activities - attendance at and participation in all classes is required to complete the course material.

Assignments are submitted the initial time for peer editing, returned by the peer editor to the author the next class and then submitted a final time the following class for grading by the instructor. Late initial submissions may not be accepted since a peer editor may not be available and thus the author may lose the opportunity to do peer editing of someone else's work and thus the marks for that portion of the assignment (15% of the assignment total). Late or non return of the author's paper by the peer editor will result in the peer editor being penalized 200% of the grade for the editing portion of the assignment (2 x 15% = 30% of the assignment total). A penalty of 20% per day of the total will be applied to a late Final Submission.

## **University Policies**

**Academic Integrity:**

Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from a 0 grade on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University's *Academic Integrity Policy*. You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trent's Academic Integrity website to learn more: <http://www.trentu.ca/academicintegrity/>.

**Access to Instruction:**

It is Trent University's intent to create an inclusive learning environment. If a student has a disability and/or health consideration and feels that he/she may need accommodations to succeed in this course, the student should contact the Disability Services Office (BL Suite 109, 748-1281, [disabilityservices@trentu.ca](mailto:disabilityservices@trentu.ca)) as soon as possible. Complete text can be found under Access to Instruction in the Academic Calendar.

**Week-by-week schedule:**

See the online calendar tool of *MyLearningSystem* for up-to-date scheduling information. The general schedule we will follow, subject to modifications as the class progresses, will be:

**Fall Semester:**

<b>Week 1</b> 09/06	Introductory exercises Start Lab L1
<b>Week 2</b> 09/13	Finish Lab L1 Start Lab L2
<b>Week 3</b> 09/20	Finish Lab L2
<b>Week 4</b> 09/27	Start Lab L3 Assignment 1 Initial Due Date
<b>Week 5</b> 10/04	Finish Lab L3 Start Lab L4 Assignment 1 Peer Editing Due
<b>Week 6</b> 10/11	Finish Lab L4 Assignment 1 Final Due Date
<b>Week 7</b> 10/18	Start Lab L5

**Fall Reading Week**

10/20 - 10/28

<b>Week 8</b> 11/01	Finish Lab L5 Start Lab L6
<b>Week 9</b> 11/08	Finish Lab L6 Start Lab L7
<b>Week 10</b> 11/15	Finish Lab L7
<b>Week 11</b> 11/22	Start Lab E1
<b>Week 12</b> 11/29	Quiz 1 - Light Finish Lab E1

**Winter Break**

**Spring Semester:**

<b>Week 13</b> 01/10	Start Lab E2
<b>Week 14</b> 01/17	Finish Lab E2 Start Lab E3
<b>Week 15</b> 01/24	Finish Lab E3 Assignment 2 Initial Due Date
<b>Week 16</b> 01/31	Start Lab E4 Assignment 2 Peer Editing Due
<b>Week 17</b> 02/07	Finish Lab E4 Assignment 2 Final Due Date
<b>Week 18</b> 02/14	Start Lab E5 Start Lab Ma1

**Spring Reading Week**

02/16 - 02-24

<b>Week 19</b> 02/28	Finish Lab Ma1 Start Lab Ma2
<b>Week 20</b> 03/07	Quiz 2 - Electricity Start Lab Ma2
<b>Week 21</b> 03/14	Finish Lab Ma2 Assignment 3 Initial Due Date
<b>Week 22</b> 03/21	Start Lab Ma3 Assignment 3 Peer Editing Due
<b>Week 23</b> 03/28	Finish Lab Ma3 Assignment 3 Final Due Date Review
<b>Week 24</b> 04/04	Quiz 3 - Levers, Pulleys, Gears Review

**Final Exam**, return of all graded materials