**TERMS OFFERED**
Check All That Apply:
- Summer
- Fall
- Spring

**CAMPUS(ES) INVOLVED**
- Columet
- Cont Ed
- Ft. Wayne
- Tech Statewide
- Indianapolis
- N. Central
- W. Lafayette

**CREDIT TYPE**
1. Fixed Credit: Cr. Hrs. 3
2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To Maximum Cr. Hrs.
3. Equivalent Credit: Yes No

**COURSE ATTRIBUTES: Check All That Apply**
- 6. Registration Approval Type
- Department Instructor
- 7. Variable Title
- 8. Honors
- 9. Full Time Privilege
- 10. Off Campus Experience

**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**
Inadequacies of classical physics; wave packets and Schrodinger equation, one-dimensional problems; operator formulation of quantum mechanics; linear harmonic oscillator, singular momentum, hydrogen atom, Pauli principle and application to helium atom. Typically offered Fall Spring.

**COURSE LEARNING OUTCOMES:**
Students will be able to use quantum mechanics to solve basic quantum problems. They will interpret quantum mechanical solutions.

**OFFICE OF THE REGISTRAR**
Physics 442: Quantum Mechanics
Location: MW 3-430 PM
Instructor: Jacob Millsap, Ph. D.
Office: KT 126A
Email: millsapj@ipfw.edu (my favorite way to be contacted)
Phone: 481-5475
Text: Introduction to Quantum Mechanics by David Griffiths
Office hrs: M 1 - 2, W 5 - 6
I have an open door policy so feel free to stop in anytime but reserve the right to close my door if I am busy. I am available by appointment as well, so long as you show up.

What do you need to do?
#1 and most important is focus. You will not be able to understand the material if you do not put in significant uninterrupted time! Yes, this means turning off your cell phones! I know it hurts but it will likely reduce the time needed to grasp the concepts by a factor of 42! (It I feel this is a trouble area I may alter the course breakdown to include points for time spent studying while your phone is on my desk.)

#2 collaboration! Working together is critical. This is a beneficial experience for all involved. I am going to experiment with this as well. Before you come to me with a question about an assignment you should (code for DO THIS) first consult at least 1 other person in the class and discuss. I will be asking of course who you talked to and what you discussed, and how you tried to attack the problem so be prepared to explain. Understanding and the ability to articulate ideas go hand in hand!

#3 Come to class prepared. Make sure you have done any assigned reading, HW or other necessary preparation BEFORE class. Be ready to participate. If someone asks a question and you think you know the answer jump in and help explain (see above on articulation!) (see below on participation!).

Participation
Participating in class starts with showing up but includes being more than a motionless seat warmer. Coming to class prepared is participation. It also includes instigating and adding to discussions of course related materials. Asking questions if you are unsure, helping to answer questions (even if you are not 100% sure, try your best to put in your 2 cents). Working together! This does not mean sitting in the same room working on problems. Find a place where you can work on material as a group. Talk it through from start to finish and when everything is done go back over the material.

Homework
When turning in homework assignments I expect to see clear explanations. If the HW is problem based, do not just turn in pages of equations. Include explanations as to why you did what you did; is there some physical significance to what you did. This of course needs to be legible. If I can’t read it I will return it. If you are sloppy, type it. My suggestion is to work it all out then rewrite it neatly and in an organized manner. HW grades will also include points for organization and neatness.

Exams
Tentatively there will be 2-3 take-home exams. Depending on the pace the first exam is may occur on or around Feb 28th. The final exam will be handed out the last week of the regular semester and you will have until May 6th to finish them and turn them to me.

Grades
The break down is: Exams 25% each, HW 40% and participation 10%
These are subject to change and may include some new categories if need be.

What is Quantum Mechanics? This is our first assignment. You are to legibly write a short paper answering the questions “what is quantum mechanics?” Reference the sources you used (nothing fancy but a title, author etc). Also include (incorporate) a description of two experiments/observations that lead to the development of quantum mechanics. Be clear in your description. Do not just list the experiments/observation and the process. Explain how it motivated the development of QM. How long does this have to be? As short as it can be yet still including a complete coherent answer to the question and meaningful explanations.