

**UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE INFORMATION SHEET**

1. Course: Physics 597, Senior Physics Laboratory II

Lecture/Time/Session(s): L01: T, 13:00-13:50, SS 006, Fall 2009

Instructor(s): Dr. A. Yau

Office: SB 623, 403-220-8825

Office Hours: T: 12:00-12:50

Email: yau@phys.ucalgary.ca

Physics and Astronomy Office: SB 605, 403-220-5385

2. Prerequisite (s): Physics 497 or Physics 325,355, and 407.

Note: The Faculty of Science policy on pre- and co-requisite checking is outlined on page 203, columns 2 and 3 of the 2009-2010 Calendar. A student may not register in a course unless a grade at least "C-" has been obtained in each pre-requisite course; it is the responsibility of students to ensure that their registrations are in order.

3. The University policy on grading and related matters is described on pages 41-53 of the 2009 - 2010 Calendar. In determining the overall grade in the course the following weights will be used:

Lab experiments (with written reports)	90%
Oral Presentation	10%

There will be no final examination in this course. Lab reports must be completed on schedule.

4. Missed Components of Term Work. The regulations of the Faculty of Science pertaining to this matter are outlined on page 204, column 1 of the 2009-2010 Calendar. It is the student's responsibility to familiarize himself/herself with these regulations.

5. A grade of at least C in the laboratory portion of the course is necessary for a passing grade in the course.

REFERENCES: "*An Introduction to Error Analysis*", by John R. Taylor, 2nd Edition, University Science Books, 1997
"*Building Scientific Apparatus, a Practical Guide to Design & Construction*", by John H. Moore, Christopher C. Davis and Michael A. Coplan, 2nd Edition, Addison-Wesley, 1989

Department Approval: _____

Date: _____

IMPORTANT/SAFEWALK: Campus Security will escort individuals day or night. Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under the heading "Student Misconduct (pages 49-53 for 2009-2010).

FOIP: This course will be conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page.

STUDENT UNION INFORMATION: VP Academic **Phone:** 220- 3911 **Email:** suvpaca@ucalgary.ca
SU Faculty Rep. **Phone:** 220 3913 **Email:** sciencerep@su.ucalgary.ca

AY/clh
13/08/09

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Physics 597
Senior Laboratory
FALL 2009

Course content:

This is a laboratory course accompanied by weekly 1-hour lectures. The lectures will include discussions of report writing, experimental techniques, data analysis and error analysis.

Three experiments are to be chosen from the following list, with some restrictions. All experiments are to be performed by students working in pairs. However, each student is expected to analyze the data, perform an error analysis, reach conclusions, and write a report independently. The first of the three experiments is to form the basis for an oral presentation to the class.

Experiments (subject to change):

- **High-resolution gamma-ray spectroscopy / Compton edge**
- **Michelson interferometer / Fourier transform spectroscopy**
- **Charge to mass ratio of the electron**
- **Nuclear magnetic resonance steady-state absorption**
- **HeNe laser**
- **Ramsauer-Townsend effect**
- **Boltzmann's constant from random noise**
- **Evanescent wave by frustrated total internal reflection**
- **Super-conducting quantum interference device (SQUID)**
- **Speed of light**

The following experiments may also be available:

- **Cosmic ray telescope**
- **North-seeking gyroscope (gyro-compass)**

Outline descriptions of the experiments available are given in a separate document.

Textbook: "*An Introduction to Error Analysis*", by John R. Taylor, 2nd Edition, University Science Books, 1997