UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS and ASTRONOMY
COURSE OUTLINE

1. Physics 533 "Advanced Mathematical Methods of Physics"

   L01 (H3-0): MWF 16:00-16:50 ST059, Th 16:00-16:50 ST 057; Instructor**:** Barry Sanders; Office: SB303; Ph: 403-210-8462; Skype: barrycsanders; Email: sandersb@ucalgary.ca; Office Hours: By appointment [email Lucia Wang at wangl@ucalgary.ca] Some lectures will be given by Dr Jeong San Kim http://www.iqis.org/people/peoplepage.php?id=130 and by Dr Ben Fortescue http://www.iqis.org/people/peoplepage.php?id=175

   Departmental Office: SB605; Ph: 403-220-5385; Email: office@phas.ucalgary.ca

2. **PREREQUISITES:** Physics 443 or Chemistry 373, Physics 455.

3. **GRADING**: The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course, the following weights will be used:

[Example:	Assignments	40%
	Project	20%
	Final Examination	40% (To be scheduled by the Registrar)]

   In Phys 533 we are using**:** Percentage grades will be given for all elements of term work and examinations in Physics 369. A weighted course percentage will be calculated for each student after the final exam is written. Conversion: $\geq 95\% \Rightarrow$A+; $\geq 85\% \Rightarrow$A; $\geq 80\% \Rightarrow$A-; $\geq 75\% \Rightarrow$B+; $\geq 70\% \Rightarrow$B; $\geq 65\% \Rightarrow$B-; $\geq 60\% \Rightarrow$C+; $\geq 55\% \Rightarrow$C; $\geq 50\% \Rightarrow$C-; $\geq 45\% \Rightarrow$D+; $\geq 40\% \Rightarrow$D; $<40\% \Rightarrow$F.

4. **Missed Components of Term Work**. The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: **http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html**. It is the student's responsibility to be familiar with these regulations. See also **http://www.ucalgary.ca/pubs/calendar/current/e-3.html**.

5. **REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY**. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. **TEXTBOOK**: G. B. Arfken and H. J. Weber, Mathematical Methods for Physicists, 6th ed. (Elsevier Academic Press, Burlington MA, 2005).

7. **EXAMINATION POLICY**: Closed-book examination; no calculators. Students are encouraged to read the Calendar, Section G, on Examinations: **http://www.ucalgary.ca/pubs/calendar/current/g.html**.

Department Approval_____ **Date**_____

Associate Dean's Approval for
out of regular class-time activity: _____ **Date:**_____

8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

(a) ACADEMIC MISCONDUCT (e.g. cheating or plagiarism) is a serious offence that will be dealt with rigorously in all cases. A single offence could lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero-tolerance policy regarding dishonesty. Read sections of the University Calendar under K. Student Misconduct (**http://www.ucalgary.ca/pubs/calendar/current/k.html**) to inform yourself of definitions, processes and penalties.

(b) ASSEMBLY POINTS in case of emergency during class time. Be sure to FAMILIARIZE YOURSELF with the information at http://www.ucalgary.ca/emergencyplan/assemblypoints.

(c) ACADEMIC ACCOMMODATION POLICY. Students with documentable disabilities are referred to the following links:
     Calendar entry on students with disabilities: **http://www.ucalgary.ca/pubs/calendar/current/b-1.html**
     Disability Resource Centre: **http://www.ucalgary.ca/drc/**

(d) SAFEWALK: Campus Security will escort individuals day or night (**http://www.ucalgary.ca/security/safewalk/**). Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

(e) FREEDOM OF INFORMATION AND PRIVACY: This course will be conducted in accordance with the Freedom of Information

and Protection of Privacy Act (FOIPP). 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**. For more information see also **http://www.ucalgary.ca/secretariat/privacy.**

(f) STUDENT UNION INFORMATION: VP Academic **Phone**: 220-3911 **Email**: suvpaca@ucagary.ca.
SU Faculty Rep. **Phone:** 220-3913 **Email:** sciencerep@su.ucalgary.ca Website **http://www.su.ucalgary.ca/home/contact.html**.
Student Ombudsman: **http://www.su.ucalgary.ca/services/student-services/student-rights.html**

(i) COMMUNICATION DEVICE Information. In all classes, **your cell phone MUST be off**. Communication with others via laptop computers and smart phones is prohibited in class time unless specifically permitted by the instructor. If you violate this policy you will be asked to leave the classroom. Repeated abuse could result in a charge of misconduct.

DETAILED COURSE SYLLABUS

Group theory

Gamma function

Differential equations

Sturm-Liouville theory

Special functions

Appendices