

## General Course Information

### PHYS313 – 2024 S2

### Advanced Electromagnetism and Materials

Second Semester

Professor Mike Reid (Course Coordinator)

Julius von Haast 616

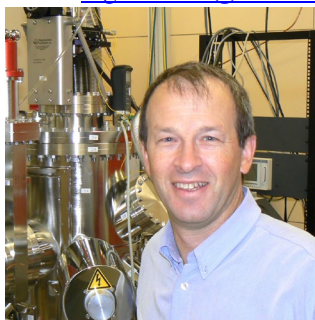
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Professor Roger Reeves

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#### Electromagnetism. Mike Reid

The development of the Maxwell equations in differential form. The propagation of electromagnetic waves in free space, dielectrics and conducting media, their behaviour at dielectric and metallic interfaces and their production from radiating sources.

#### Advanced topics in modern materials science. Roger Reeves

Development of the electronic theory of solids leading to band-structure calculations and on to band-structure engineering in quantum architectures. Advanced semiconductor physics including devices in modern optoelectronics.

### Textbooks

There is no required textbook for PHYS313 but some that can assist you are:

Materials Science:

J.R. Hook and H.E. Hall, Solid State Physics.

Electromagnetism:

D.J. Griffiths, Introduction to Electrodynamics, Fourth Edition.

The E&M section will cover much of Chapters 7-9.

We will largely follow the notation of this book.

B.S. Guru and H.R. Hiziroglu, Electromagnetic field theory fundamentals

This book was used in previous years.

The library has many other books on these topics.

### Assessment

20% HW Assignments. (10% from each section).

20% Test 1 (On first four weeks of E&M Section). Wednesday evening of Week 6. One hour.

60% Final Examination. Three Hours.

You must achieve 40% in the final exam to pass the course.

### PHYS313-24S2 Schedule

Week	Monday Date	Monday 1 pm Lecture	Tuesday 1 pm Lecture	Thursday 2 pm Tutorial	
1	15 Jul	E&M 1	E&M 2	E&M Tutorial 1	
2	22 Jul	E&M 3	E&M 4	E&M Tutorial 2	
3	29 Jul	E&M 5	E&M 6	E&M Tutorial 3	First E&M Assignment Due Tuesday
4	5 Aug	E&M 7	E&M 8	E&M Tutorial 4	
5	12 Aug	E&M 9	E&M 10	E&M Tutorial 5	Second E&M Assignment Due Tuesday
6	19 Aug	E&M 11	E&M 12	E&M Tutorial 6	<b>E&amp;M Test. 7pm Wednesday</b>
Break	26 Aug				Third E&M Assignment Due after break.
Break	2 Sep				
7	9 Sep	Materials 1	Materials 2	Materials Tutorial 1	
8	16 Sep	Materials 3	Materials 4	Materials Tutorial 2	
9	23 Sep	Materials 5	Materials 6	Materials Tutorial 3	
10	30 Sep	Materials 7	Materials 8	Materials Tutorial 4	
11	7 Oct	Materials 9	Materials 10	Materials Tutorial 5	
12	14 Oct	Materials 11	Materials 12	Materials Tutorial 6	

## Class Representative

- ❖ As part of the feedback system on the course a Class Representative will be appointed. This person (or persons) will be a volunteer selected during the first few lectures.
- ❖ The Class Rep acts as an intermediary between the class as a whole and our department so that any problems of an organizational type, level of difficulty, etc. nature can be brought to our attention.
- ❖ The Class Rep(s) will be members of the Departments Staff-Student Liaison Committee. This committee meets twice during the semester (refreshments supplied) where the reps report on their class and have an opportunity meet other reps and lecturers.

## Contact Details

- ❖ If you have a problem with any part of the course there are several people who are available for advice.
  - If the problem is with your understanding of the lecture or homework material then you should approach the Lecturer.
  - The Class Representative who acts as a feedback channel from the class to the Department.
  - If you have a grievance with some aspect of the course then in the first instance you should discuss the problem with the Lecturer. Failing a satisfactory resolution at this stage your next academic contacts are:
    - 300 level supervisor, Prof. David Wiltshire
    - Head of the School, Prof. Roger Reeves

Further steps involve the University grievance procedures. The UCSA is able to help here

## GENERAL INFORMATION

The School has general policies that apply to all courses regarding such matters as Dishonest Practice, Allowed types of calculators, Marks and Grades boundaries, Late Work, Academic Liaison, Assistance for Students with Disabilities, Reconsideration of Grades, Special Consideration Applications, etc. This information is available on the *Physics & Astronomy Undergraduate Courses* section of the Learn site.