

Location: VIC room 1605 (Physics Conference Room)
 Tues / Thurs: 1:30 - 2:45 pm

Course Instructors:

| | | | | |
|----------------|-------------|------------|--|----------------------|
| Andrew Jirasek | CT | CSI (BCCA) | andrew.jirasek@ubc.ca | 250 807 8812 |
| Will Ansbacher | MRI | VIC (BCCA) | wansbach@bccancer.bc.ca | 250 519 5621 |
| Isabelle Gagne | Nuc Med | VIC (BCCA) | imgagne@bccancer.bc.ca | 250 519 5500 x693783 |
| Tony Mestrovic | Ultrasound | VIC (BCCA) | amestrovic@bccancer.bc.ca | 250 519 5634 |
| Derek Wells | Radiography | VIC (BCCA) | dwells@bccancer.bc.ca | 250 519 5629 |

| Week | Date | Instructor | Assign/Lab | | Lecture number, Title | | Details |
|---------|---------|------------|------------|----------------|-----------------------|-----------------------|--------------------------|
| week 1 | Sept 10 | TM | A1 out | | 1 | Intro | Handouts, assign reading |
| week 2 | Sept 15 | AJ | | | 2 | Discussion session | X-ray CT |
| | Sept 17 | AJ | | | 3 | Discussion session | X-ray CT |
| week 3 | Sept 22 | WA or DW | A2 out | A1 due | 4 | Laboratory 1 | X-ray CT |
| | Sept 24 | DW | | | 5 | Discussion session | Radiography |
| week 4 | Sept 29 | DW | | Lab1 due | 6 | Discussion session | Radiography |
| | Oct 1 | DW | | | 7 | Discussion session | Radiography |
| week 5 | Oct 6 | DW | | | 8 | Discussion session | Radiography |
| | Oct 8 | DW | | | 9 | Discussion session | Radiography |
| week 6 | Oct 13 | DW | A3 out | A2 due | 10 | Laboratory 2 | Radiography |
| | Oct 15 | TM | | | 11 | Discussion session | Ultrasound |
| week 7 | Oct 20 | TM | | Lab 2 due | 12 | Discussion session | Ultrasound |
| | Oct 22 | TM | | | 13 | Discussion session | Ultrasound |
| week 8 | Oct 27 | TM | A4 out | A3 due | 14 | Laboratory 3 | Ultrasound |
| | Oct 29 | IG | | | 15 | Discussion session | Nuclear Medicine |
| week 9 | Nov 3 | IG | | | 16 | Discussion session | Nuclear Medicine |
| | Nov 5 | IG | | Lab 3 due | 17 | Discussion session | Nuclear Medicine |
| week 10 | Nov 10 | IG | | | 18 | Discussion session | Nuclear Medicine |
| | Nov 12 | IG | | | 19 | Discussion session | Nuclear Medicine |
| week 11 | Nov 17 | WA | A5 out | A4 due | 20 | Discussion session | MRI |
| | Nov 19 | WA | | | 21 | Discussion session | MRI |
| week 12 | Nov 24 | WA | | | 22 | Discussion session | MRI |
| | Nov 26 | WA | | | 23 | Discussion session | MRI |
| week 13 | Dec 1 | WA | | A5, report due | 24 | Discussion session | MRI |
| | Dec 3 | | | | 25 | Student presentations | |

Marking Scheme

| | | |
|---------------|-----|-----------------------------|
| Participation | 25% | in class |
| Assignments | 25% | 5% x 5 assignments |
| Laboratory | 25% | 10% x 3 labs |
| Project | 25% | 1 report (10%) + talk (10%) |

Participation

The “in-class” component of the course is organized as a discussion session. Each week prior to the discussion session you will be assigned relevant reading material for that days discussion. As well, you will be given “sample questions” that may be asked of you in the discussion session. You will be responsible for all the assigned reading. During each session you will be called on to answer questions / explain concepts / draw diagrams of equipment etc from the assigned sections for that given week. The questions asked by the instructors will form the “seeds” for the discussion sessions.

Marking for the discussion session component will be undertaken by the instructor leading the discussion session and will be based on your level of preparation for each session, comprehension of material, and initiative in the session.

Assignments

1 assignment in each of the main sections (radiography, CT, MRI, ultrasound, nuclear medicine). Each assignment is worth 5% of the total mark.

Labs

3 labs to be completed (radiography, CT, ultrasound). Lab time is scheduled during course hours. Data for each lab will be collected in groups. The analysis and lab write-up is to be performed individually. Lab write-ups should be no more than 5 pages (adhere to length restrictions!) and should consist of the following components:

- I. abstract: brief summary of the experiment. State relevant results.
- II. Introduction: state brief background to the experiment. May state relevant theory here. State objective of experiment.
- III. Theory: if not stated in (II), state theory required to perform experiment. This should be concise, yet cover what is needed.
- IV. Materials and Methods: state equipment used, how it was set-up, and methods used in experiment. Others reading the report should be able to reproduce your experiment and results based on the materials and methods described in this section.
- V. Results: state main results of experiment. Include tables, plots etc.
- VI. Discussion: summarize (synthesize) main results. Do they make sense? Answer any questions posed in lab hand-out material.
- VII. Conclusions: Summarize experiment and main results.
- VIII. References: include any references other than lab hand-outs.

Project + talk

You can choose any topic that concentrates on an “emerging technique / technology” in medical imaging, i.e. it can not be a review of basic modalities. Let one of the instructors know your choice of topic before you start your research. The report is to be an “abstract” of 3 pages in length (not

more!!) summarizing the scope of your talk. Talks are 1/2 hr in length and are to be held in the last week of class.

Your abstract and talk should be based on research presented in recent published papers on your chosen topic. Your abstract should include references to the papers that your work is based on.

Course Textbook

Bushberg, 3rd edition