

**Instructor:** Dr. Gregory Naumiec      **Office:** 130 Laney-Manion Annex      **Email:** gregn@uca.edu  
**Phone:** 852-0692      **Website:** <https://sites.google.com/a/uca.edu/naumiecgroup/home>

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**Lecture:**      MW      2:00 PM – 2:50 PM      Laney-Manion 103 (305 for lab)

**Office hours:** MTW      9:00 AM – 11:00 AM  
Or by appointment

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**Required course materials:**

Assigned primary literature articles concerning course material  
Composition notebook  
Safety glasses

**Prerequisite/Co-requisite:**

Successful completion of CHEM 3211 and CHEM 3411 (C or better).

**Course Description:**

Modern medical imaging techniques have revolutionized how patients are diagnosed, monitored, and treated. This course will introduce students to topics such as magnetic resonance imaging (MRI), positron emission tomography (PET), single-photon emission computed tomography (SPECT), near-infrared (NIR), ultrasound and X-ray. Students will gain an understanding about how these techniques are used to image the body, the underlying chemistry of the techniques, as well as the chemistry behind the biosensors used. This course will be taught with a combination of lecture and laboratory experiences totaling 2 contact hours per week. Lab experiences will utilize department spectroscopic instrumentation (NMR, IR) to illustrate concepts related to chemistry and medical imaging analyses.

**Attendance:**

Attendance is strongly encouraged. We are not working out of a textbook, so keeping up on your own will be tough. This subject material is very difficult to learn on your own. If you are late and miss a quiz/lab/presentation (with the exception of a UCA sanctioned activity, documented illness, etc.) a grade of '0' will be assigned.

### **How to Be Successful in This Class:**

- 1) Keep up to date. Try to read the assigned reading before coming to class so you can be prepared with any questions you have. I understand journal articles are quite dense and difficult to understand on your own, but looking them over at least will be beneficial.
- 2) Class participation is encouraged. Volunteering to solve problems on the board is one of the best ways to make sure you understand the material. Please ask questions if you need further help understanding something. Chances are, someone else in the class has the same question.
- 4) Visit me during my office hours (or make an appointment or just stop by) if you need help with the material.

Familiarize yourself with all policies included in the 2016–2017 Student Handbook, particularly the following (<http://uca.edu/student/student-handbook>):

- Sexual Harassment Policy
- Academic Policies

### **Americans with Disabilities Act:**

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation due to a disability, please contact the UCA Office of Disability Services (450-3135). For more information please refer to the 2016–2017 student handbook (<http://uca.edu/student/student-handbook>).

### **Academic Integrity:**

The University of Central Arkansas affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university's Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the *Student Handbook*. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student's acceptance of this university policy. For more information please refer to the 2016–2017 student handbook (<http://uca.edu/student/student-handbook>).

### **Title IX Disclosure:**

If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to “student-on-student” or “employee-on-student”), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs and the obligation to conduct an investigation will depend on those specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: <https://uca.edu/titleix>. *\*Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity.* For more information please refer to the 2016–2017 student handbook (<http://uca.edu/student/student-handbook>).

### **Building Emergency Plan Statement:**

An Emergency Procedures Summary (EPS) for the building in which this class is held will be discussed during the first week of this course. EPS documents for most buildings on campus are available at <http://uca.edu/mysafety/bep/>. Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes.

### **Evaluations:**

Student evaluations of a course and its professor are a crucial element in helping faculty achieve excellence in the classroom and the institution in demonstrating that students are gaining knowledge. Students may evaluate courses they are taking starting on the Monday of the 13<sup>th</sup> week instruction through the end of finals week by logging in to myUCA and clicking on the Evals button on the top right.

### Grading:

Lecture	Points
<i>Quizzes (6)</i>	15 pts each
<i>Synthesis Paper</i>	30 pts
<i>Literature brief (2)</i>	25 pts each
<i>Poster</i>	30 pts
<i>Group Presentation</i>	30 pts
<i>Laboratory Notebook</i>	25 pts
<i>Laboratory report</i>	30 pts
<b>Total</b>	<b>285 pts</b>

### Homework:

Homework problems representative of the material discussed in lecture will be assigned once we start a section. Homework will not be graded but you are strongly encouraged to do all the assigned problems to help you understand the material. You need to work on solving these question efficiently.

### Quizzes:

There will be six 10 point quizzes, one associated with each subject. Each in class quiz will be given at the beginning of class and you will have 10 – 15 minutes to complete it. **Makeup quizzes will not be given unless the reason for absence is an officially sanctioned UCA activity, documented illness, etc.** It is your responsibility to provide me with documentation prior to the quiz. **Missing a quiz without an acceptable excuse will result in a grade of “0”.**

### Group Presentation:

Your lab group will give a short 10 – 15 minute presentation on the results of their experiments. Each group member will be expected to participate in the presentation. The presentations will be scheduled the day of the scheduled final.

**Poster Presentation:**

Your lab group will create and present a scientific poster on the results of their experiments. Each group member will be expected to participate in the presentation. The presentations will be scheduled toward the end of the semester.

**Papers:**

There will be several written assignments throughout the course. They will take the shape of literature briefs (2), a brief synthesis paper, and laboratory reports. The lab reports may be individual or group (but that leaves your fate in your groups hands).

## TENTATIVE SCHEDULE

1/15 (M) – <b>MLK Jr. Day (no class)</b>	1/17 (W) – Introduction
1/22 (M) – Introduction	1/24 (W) – PET
1/29 (M) – PET, cont.	1/31 (W) – PET, cont.
2/5 (M) – PET, cont.	2/7 (W) – SPECT
2/12 (M) – SPECT, cont.	2/14 (W) – SPECT, cont.
2/19 (M) – SPECT, cont.	2/21 (W) – MRI
2/26 (M) – MRI, cont.	2/28 (W) – MRI, cont.
3/5 (M) – Lab	3/7 (W) – Lab
3/12 (M) – Lab	3/14 (W) – Lab
3/19 (M) – <b>Spring Break (no class)</b>	3/21 (W) – <b>Spring Break (no class)</b>
3/26 (M) – MRI, cont.	3/28 (W) – Optical Imaging
4/2 (M) – Optical Imaging, cont.	4/4 (W) – Optical Imaging, cont.
4/9 (M) – Optical Imaging, cont.	4/11 (W) – Ultrasound
4/16 (M) – US, cont.	4/18 (W) – US, cont.
4/23 (M) – CT	4/25 (W) – Poster Presentations
<b>5/4 (M) – Presentations</b> <b>Presentations: 10:00AM - 12:00PM</b>	

**Note that this schedule is tentative; exam and quiz dates are likely to change**

**Drop Deadline:                    3/30    Last day to drop with a “W”**