

## Physics 221 - Imaging Project

This project replaces Exam 4. It will be worth the 10% of the grade that Exam 4 would have been.

The project includes both an individual and group portion. Individually each person will complete a research paper on their assigned imaging method and 4-5 power point slides on the topic. As a large (~10 – 15) group you will create one 15 minute presentation that will be presented the next class day after lab. Individually students will be responsible for constructive comments about the other four class presentations.

Presentations can be power point, white board, interactive, physical or simulation demonstrations or any combination of these. Whatever you feel will be most effective for your fellow classmates.

Dates:

- **Friday 4/20** Research paper from each person on the physics behind how the imaging method works and description of cases where it's appropriate to use your method. Use physics to support your reasoning. Be sure to include how your imaging method uses ideas you've learned in this course. (limited to 2 pages single spaced plus diagrams and references)
- **Tuesday or Wednesday 4/24 & 25** Each person is responsible for bringing in 4-5 slides about their assigned imaging method. Then all groups for that topic will decide on and build one 15 minute presentation for the class on that imaging method.
- **Wednesday or Friday 4/25 & 27** Imaging method presentation to whole class. Presentation must be understandable to fellow classmates who have not researched your topic.
- **Wednesday and Friday 4/25 & 4/27** Comments on other in class imaging method presentations due at the end of class for that day's presentations. These will be graded on thoughtful constructive responses. "Good work" or "nice presentation, I learned a lot" are nice; however, they are not adequate to earn points in this category. Comment on clarity of the presentation with specific detail on content that you understood. Also note the content that you did not completely understand. Your comments must include two or more questions about the presentation.

### Rubric (100 pts total)

- 50 pts Research Paper (2 pages + diagrams)
- 20 pts 4-5 slides due at the beginning of your lab
- 20 pts group presentation: 15 minute presentation in class
- 10 pts Individual constructive comments for other imaging method in class presentations.

### Assigned Topics

Tuesday Lab:

Plain X-rays (Anderson, Bethel, Czajkowski, Kirk, Lazio, McCartney, Thompson, Wallendorff, White)  
CT or CAT Scan (Baker, Faulkner, Grover, Mahaney, McNeal, Ordaz, Parks, Swanberg, Ulibarri, Walters, Whitehead)

Wednesday afternoon Lab:

Ultrasound

Wednesday Evening Lab:

Magnetic Resonance Imaging (MRI) (Mallory V. & Cody V. groups)  
Breast Thermography (Sean B. and Daniel P. groups)