

Physics 221 - Imaging Project

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, supergroup, 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 4/26** 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)
 - (22) Description of imaging method including physics to support your description
 - (10) When it is useful to use this method, use physics to support your reasoning
 - (10) Describe physics from this course that applies to your method.
 - (8) Mechanics: 2 page limit, intro/conclusion, grammar, references, typed, stapled.
- **Tuesday or Wednesday 4/30 & 5/1** Each person is responsible for bringing in 4-5 slides about their supergroup's chosen imaging method. Then supergroup for that topic will decide on and build one 15 minute presentation for the class on that imaging method.
 - (10) Complete
 - (10) Clarity
- **Wednesday or Friday 5/1 & 5/3** Imaging method presentation to whole class. Presentation must be understandable to fellow classmates who have not researched your topic. (20 points)
- **Wednesday and Friday 5/1 & 5/3** 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.
 - (3) Constructive Criticism
 - (3) At least one thing that you learned
 - (3) Two or more questions
 - (1) participation

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.

Topics

Plain X-rays	Wa 1,3,6
CT or CAT Scan	We & R

Ultrasound	T 1,3,4,6
Magnetic Resonance Imaging (MRI)	T 2,5,7
Breast Thermography	
Scanning Confocal microscopy	
Electron Microscopy	Wa 2,4,5,7

Choosing your Topic:

Group presentations will consist of 3-4 lab groups together – you will become a supergroup. This means you need to find two or three other groups from your lab day who would like to study the same topic as your group. Each supergroup must have a different topic. Every group from the Wednesday evening lab is one supergroup.