# http://www.ric.edu/webcommunications/images/SealWithText_Small_Black.pngUNDERGRADUATE CURRICULUM COMMITTEE (UCC)PROPOSAL FORM

## Cover page scroll over blue text to see further important [instructions](#instructions): [if not working select “COMMents on rollover” in your Word preferences under view] please read these.

**N.B. DO NOT USE HIGHLIGHT, where choices are given within categories, please DELETE those THAT DO NOT APPLY TO YOUR PROPOSAL. Do not delete numbered categories.**

**ALL numbers in section (A) to be completed, including the impact ones (#5-7), put “none” if that is the case.**

|  |  |  |
| --- | --- | --- |
| A.1. [Course or program](#Proposal) | **MRI 302 Foundations of Magnetic Resonance Imaging** |  |
| [Replacing](#Ifapplicable)  |  |
| A.2. [Proposal type](#type) | **Course: creation** |
| A.3. [Originator](#Originator) | **Eric Hall** | [Home department](#home_dept) | **Biology/Health Sciences** |
| A.4. [Context and Rationale](#Rationale)  | **This course will introduce the fundamental theory and practice of magnetic resonance imaging (MRI). It is meant to be a first introduction to the profession for students entering the program from Fall 2020.**Due to patient requirements the laboratory component of this course is highly limited. Students will not be meeting consistently but the time needs to be free in case an MRI machine become available. |
| A.5. [Student impact](#student_impact) | **Improved readiness for working in the hospital or clinical environment** |
| A.6. [Impact on other programs](#impact)  | **None** |
| A.7. [Resource impact](#Resource) | [*Faculty PT & FT*](#faculty):  | **This course will be taught by LSMI faculty.** |
| [*Library*:](#library) | **None** |
| [*Technology*](#technology) | **None** |
| [*Facilities*](#facilities): | **None** |
| A.8. [Semester effective](#Semester_effective) | **Fall 2020** | A.9. [Rationale if sooner than next Fall](#Semester_effective) |  |
| A.10. INSTRUCTIONS FOR CATALOG COPY: This single file copy must include ALL relevant pages from the college catalog, and show how the catalog will be revised. (1) Go to the “Forms and Information” page on the UCC website. Scroll down until you see the Word files for the current catalog. (2) Download ALL catalog sections relevant for this proposal, including course descriptions and/or other affected programs. (3) Place ALL relevant catalog copy into a single file. Put page breaks between sections and **delete any catalog pages not relevant for this proposal**. (4) Using the track changes function, revise the catalog pages to demonstrate what the information should look like in next year’s catalog. (5) Check the revised catalog pages against the proposal form, especially making sure that program totals are correct if adding/deleting course credits. If new copy, indicate where it should go in the catalog. If making related proposals a single catalog copy that includes all is acceptable. Send as a separate single file along with this form. |

B. [NEW OR REVISED COURSES](#delete_if)  **DO NOT use highlight. Do not delete numbered categories, just leave blank if they do not apply. Delete this whole page if the proposal does not include a new or revised course. Always fill in b. 1 and B. 3 for context.**

|  | Old ([for revisions only](#Revisions))ONLY include information that is being revised, otherwise leave blank.  | NewExamples are provided within some of the boxes for guidance, delete just the examples that do not apply. |
| --- | --- | --- |
| B.1. [Course prefix and number](#cours_title)  |  | **MRI 302**  |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#title)  |  | **Foundations of Magnetic Resonance Imaging** |
| B.4. [Course description](#description)  |  | Students will learn MRI history, instrumentation, safety, positioning, equipment, coils and mechanisms of image formation. Also included are basic pharmacology, venipuncture and intravenous contrast media administration. |
| B.5. [Prerequisite(s)](#prereqs) |  | **Acceptance into a Medical Imaging Clinical program** |
| B.6. [Offered](#Offered) |  | **Spring**  |
| B.7. [Contact hours](#contacthours)  |  | **3** |
| B.8. [Credit hours](#credits) |  | **3** |
| B.9. [Justify differences if any](#differences) |  |
| B.10. [Grading system](#grading)  |  | **Letter grade**  |
| B.11. [Instructional methods](#instr_methods) |  | **Lecture****Laboratory**  |
| B.12.[Categories](#required) |  | **Required for major**  |
| B.13. Is this an Honors course? |  | **NO** |
| B.14. [General Education](#ge)N.B. Connections must include at least 50% Standard Classroom instruction. |  | **NO |****category:** |
| B.15. [How will student performance be evaluated?](#performance) |  | **Exams** **Class Work****Practicum****Laboratory** **Quizzes |** |
| B.16 [Recommended class-size](#class_size" \o "Check appendix XVIII in the UCC Manual for Best Practices) |  | **24** |
| B.17. [Redundancy statement](#competing) |  | **N/A** |
| B. 18. Other changes, if any |  |

| B.19**.** [**Course learning outcomes**](#outcomes)**: List each one in a separate row** | [**Professional Org.Standard(s)**](#standards)**, if relevant** | [**How will each outcome be measured**](#measured)**?** |
| --- | --- | --- |
| * Understand the historical development leading to MRI.
* Understand the basic physics, instrumentation, imaging, image weighting, and basic protocols and parameters utilized in MRI.
* Understand and demonstrate thorough knowledge in MRI safety with regards to patients, MRI scan room, equipment, and contrast administration.
* Discuss MRI safety Zones I, II, III, and IV.
* Discuss MRI safe, unsafe and conditional.
* Navigate [www.mrisafety.com](http://www.mrisafety.com).
* Discuss societies in MRI (ISMRM, SMRT).
* Define matrix, pixel, voxel and FOV
* Develop basic knowledge of matrix size requirement as related to type of imaging study.
 |  | Examination, Quizzes and Assignments |

| B.20. [**Topical outline**](#outline)**: DO NOT INSERT WHOLE SYLLABUS, JUST A TWO-TIER TOPIC OUTLINE. Proposals that ignore this request will be returned for revision.** |
| --- |
| 1. History and overview of MRI
	1. Main static field
	2. Radiofrequency field
	3. Gradient field
2. MRI Safety
	1. Organizations
	2. Policies and procedures
	3. Zones
	4. Personnel
3. Basic Instrumentation
	1. Main static field
	2. Radiofrequency field
	3. Gradient field
4. MRI Safety Items Part I
	1. MR Safe
	2. Not Safe
	3. Conditional
5. MRI Safety Items Part II
	1. Common implant and devices
	2. Implant decision making
6. Obtaining safety screening and clinical histories
	1. Identifying items
	2. Process of patient
7. Anxiety, Phobias and Emergency Medications
	1. Psychological techniques used in MRI
	2. Identifying emergency situations and medications
8. Venipuncture in MRI
	1. Techniques and use
	2. Practical applications of angiocatheters
9. IM Injections
	1. Techniques and use
	2. Practical applications
10. MRI Vendors and Equipment
	1. Differences between vendors
	2. Ancillary equipment usage
11. MRI Contrast Agents
	1. Gadolinium based contrast agents (T1 agents)
	2. Other forms of contrast agents in MRI (T2 and T2\* agents)
12. Forming Images
	1. Basic principles of image formation
	2. Identifying image weighting in MRI

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## D. Signatures

* Changes that affect General Education in any way MUST be approved by ALL Deans and COGE Chair.
* Changes that directly impact more than one department/program MUST have the signatures of all relevant department chairs, program directors, and their relevant dean (e.g. when creating/revising a program using courses from other departments/programs). Check UCC manual 4.2 for further guidelines on whether the signatures need to be approval or acknowledgement.
* Proposals that do not have appropriate approval signatures will not be considered.
* Type in name of person signing and their position/affiliation.
* Send electronic files of this proposal and accompanying catalog copy to curriculum@ric.edu and a printed signature copy of this whole form to the current Chair of UCC. Check UCC website for due dates.

##### D.1. Approvals: required from programs/departments/deans who originate the proposal. may include multiple departments, e.g., for joint/interdisciplinary proposals.

| Name | Position/affiliation | [Signature](#_Signature" \o "Insert electronic signature, if available, in this column) | Date |
| --- | --- | --- | --- |
| Eric Hall | Program Director of Medical Imaging | e-mail confirmation to curriculum@ric.edu | 4/1/2020 |
| Eric Roberts | Chair of Biology | e-mail confirmation to curriculum@ric.edu | 4/1/2020 |
| Earl Simson | Dean of FAS | e-mail confirmation to curriculum@ric.edu | 4/6/2020 |