# 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) | **dms 308 sonographic principles and instrumentation** |  |
| [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 replaces what was previously taught in DMS 307 and 337 (but they will stay in the catalog until completed by their cohort).**  |
| 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 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)  |  | **DMS 308** |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#title)  |  | **Sonographic Principles and Instrumentation** |
| B.4. [Course description](#description)  |  | Physical principles and instrumentation of diagnostic ultrasound are covered. Students will study the physical principles of image formation, management of artifacts, evaluation of instrument performance, and safe scanning techniques. |
| B.5. [Prerequisite(s)](#prereqs) |  | **DMS 305** |
| B.6. [Offered](#Offered) |  | **Spring** |
| B.7. [Contact hours](#contacthours)  |  | **4** |
| B.8. [Credit hours](#credits) |  | **4** |
| B.9. [Justify differences if any](#differences) | 4 hours of expected time spent on lecture materials with a 3 hour face-to-face laboratory component. |
| B.10. [Grading system](#grading)  |  | **Letter grade**  |
| B.11. [Instructional methods](#instr_methods) |  | **Lecture** |
| 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** **Presentation** |
| 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)**?** |
| --- | --- | --- |
| Upon completion of this course, the student will have a comprehensive knowledge of ultrasound physics and principals. The student will be able to apply this knowledge to their clinical practice in order to produce high-quality, diagnostic images. The student will also be able to complete the Sonographic Principals and Instrumentation registry examination offered by the ARDMS.  |  | Examination, Presentation Performance 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.** |
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| Basics* Graphs
* Units & Conversion

Soundwaves* Parameters
* Speed
* Pulsed Sound
 |
| Intensities* Parameters
* Considerations
* Measuring

Interactions* Comparing & Logarithms
* Attenuation & Incidence
* Reflection, Transmission & Refraction

Range Equation* Time-Of-Flight
 |
| Transducers * Types
* Construction
* Piezoelectric Material

Sound Beams * Anatomy
* Divergence
 |
| Resolution * Axial & Lateral
* Focusing

Display Modes* Amplitude, Brightness & Motion
 |
| Displays & Image Processing* Greyscale
* Controls & Converters
* Pixels & Analog
* Processing, Magnification & Archiving
* Compounding

Pulsed Wave * Output
* Beam Former
* TGC Curve
 |
| 2D Imaging * Transducers & Arrays
* 3D Application

Real-Time Imaging* Focal Zone
* Sector Size
* Line Density
 |
| Dynamic Range: Purpose & Application  |
| Harmonics: Purpose & Application Contrast: Purpose & Application |
| Hemodynamics: Purpose & Application |
| Doppler: Purpose & Application |
| Doppler * Optimizing
* Adjustments
 |
| Artifacts: Types and Cause & Resolution  |
| Technologist Role* Quality Assurance
 |
| Technologist Role * Bioeffects
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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 |