# UNDERGRADUATE CURRICULUM COMMITTEE (UCC)PROPOSAL FORMhttp://www.ric.edu/webcommunications/images/SealWithText_Small_Black.png

## Cover page scroll over blue text to see further important [instructions](#3o7alnk): please read.

**N.B. DO NOT USE HIGHLIGHT, PLEASE DELETE THE WORDS THAT DO NOT APPLY TO YOUR PROPOSAL**

**ALL numbers in section (A) need to be completed, including the impact ones.**

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| A.1. [Course or program](#gjdgxs) | **ELED 330: PHYSICAL SCIENCES FOR ELEMENTARY SCHOOL TEACHERS** |  |
| [Replacing](#3znysh7)  |  |
| A.2. [Proposal type](#2et92p0) | **Course: creation**  |
| A.3. [Originator](#tyjcwt) | **Maria Lawrence** | [Home department](#3dy6vkm) | **Elementary Education** |
| A.4. [Context and Rationale](#1t3h5sf)  | The Elementary Education Department has carefully reviewed the course sequence in the Elementary Education program. Some new courses have been added, and existing courses re-sequenced and modified to provide learning opportunities that mirror the changing field of Elementary Education in RI and across the country. Students in the ELED teacher preparation program require focused experiences with science content pedagogical knowledge. The newly adopted Next Generation Science Standards (adopted in 2013 by RIDE), demands an interdisciplinary, multidimensional instructional approach that shifts traditional notions of science content pedagogy to embrace an integrated approach to knowledge and its applications. Students engage in interdisciplinary science and engineering investigations and applications associated with elementary and middle school curricula. Students are asked to expand upon their content knowledge by identifying cross-cutting concepts inherent to all science domains consistent with the Next Generation Science Standards (2013). Teachers of science are expected to teach across three domains of content knowledge. This course responds to the transformative approaches needed to teach science in three dimensions while integrating mathematical thinking and engineering practices. Developing knowledge about natural systems is what drives all fields of science. Examined are natural systems in the field (e.g., urban forest, a river system) and develop an applied approach to interdisciplinary science curricula that situates engineering skills and mathematics knowledge as essential to science processes.The course is available in the program after the completion of BIO 100 and prior to ELED 437 to instruct rising teacher candidates in the interdisciplinary nature of science domains, mathematics, and related engineering practices. Pre-practicum authentic experiences support preparation of teaching experiences in practicum.   |
| A.5. [Student impact](#4d34og8) | This is a two-credit course pre-practicum course. Students in ELED-SPED, ELED-MLED (Science and Mathematics) benefit by crossing content boundaries in authentic instructional applications reinforcing content knowledge while advancing their instructional knowledge for grades 1-8 learners. Students benefit in their preparation for Science and Mathematics practica.  |
| A.6. [Impact on other programs](#23ckvvd)  | Enrollment open to other FSEHD majors. |
| A.7. [Resource impact](#ihv636) | [*Faculty PT & FT*](#32hioqz):  | **none** |
| [*Library*:](#1hmsyys) | **none** |
| [*Technology*](#41mghml) | **e-balance** |
| [*Facilities*](#2grqrue): | **IT rich/designed classrooms with water or water accessibility.**  |
| A.8. [Semester effective](#3rdcrjn) | **Fall 2019** | A.9. [Rationale if sooner than next Fall](#3rdcrjn) |  |

B. [NEW OR REVISED COURSES](#vx1227)  **DO NOT USE HIGHLIGHT. DELETE THIS WHOLE PAGE IF THE PROPOSAL DOES NOT INCLUDE A NEW OR REVISED COURSE.**

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|  | Old ([for revisions only](#3fwokq0))Only include information that is being revised, otherwise leave blank (delete provided examples that do not apply) | NewExamples are provided for guidance, delete the ones that do not apply |
| B.1. [Course prefix and number](#26in1rg)  |  | **ELED 330** |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#lnxbz9)  |  | Physical Sciences for Elementary School Teachers |
| B.4. [Course description](#35nkun2)  |  | Students in this course examine content pedagogical knowledge for elementary school learners in the physical sciences through interactive investigations.  |
| B.5. [Prerequisite(s)](#1ksv4uv) |  | Admission to FSEHD, or permission of the Department Chair |
| B.6. [Offered](#1v1yuxt) |  | **Fall | Spring | Summer |** |
| B.7. [Contact hours](#2jxsxqh)  |  | **2** |
| B.8. [Credit hours](#z337ya) |  | **2** |
| B.9. [Justify differences if any](#3j2qqm3) |  |
| B.10. [Grading system](#2u6wntf)  |  | **Letter grade**  |
| B.11. [Instructional methods](#1y810tw) |  |  **Lecture | Small group | Individual | Hybrid** |
| B.12.[Categories](#4i7ojhp) |  | **Required for major** |
| B.13. Is this an Honors course? |  | **NO** |
| B.14. [General Education](#2xcytpi)N.B. Connections must include at least 50% Standard Classroom instruction. |  | **NO**  |
| B.15. [How will student performance be evaluated?](#1ci93xb) |  | **Attendance | Class participation | Exams | Presentations | Papers |** **Class Work | Interviews | Quizzes |****Performance Protocols | Projects |**  |
| B.16. [Redundancy statement](#3whwml4) |  | **No** |
| B. 17. Other changes, if any |  |

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| B.18**.** [**Course learning outcomes**](#2bn6wsx)**: List each one in a separate row** | [**Professional Org.Standard(s)**](#qsh70q)**, if relevant** | [**How will each outcome be measured**](#3as4poj)**?** |
| Describe the nature of science as manifested in grades 1-8 according to current adopted standards and research. | Next Generation Science Standards | Tests/quizzes, analysis of standards, curriculum analysis. |
| Approaches and strategies unique to the construction of knowledge in the physical sciences. | Next Generation Science Standards, NSTA position papers. | investigations associated with 3-dimensions of STEM; video analysis, grades 1-8 curriculum design, uses of online simulations and computer technology/programs. |
| Demonstrate knowledge in basic physical science domains and engineering process. Including interdisciplinary knowledge and crosscutting concepts and skills within the physical sciences, including mathematics. | Next Generation Science Standards; ISTE-NETS.connections to Common Core Mathematics and ELA | Readings, Video analysis, Test/quizzes, practical project –based challenge lesson designs. |
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| B.19. [**Topical outline**](#1pxezwc)**: Do NOT insert whole syllabus, we just need a two-tier outline** |
| 1. Topic 1 – Nature of Science: What is Science?

Subtopic 1a – Essential question: How did I learn science? – Self as a learner of science* 1. Defining professional science and professional domains of sciencing
	2. Defining engineering and the role of Engineering
	3. The role of mathematics in science and engineering
1. Topic 2 – Sciences in Education

Subtopic 1a- Essential question: How is science positioned in schools? What is the purpose of science in grades 1-8? * 1. Historical overview of contemporary science education in the US and RI.

Subtopic 1a – curriculum reform and testing* 1. Science standards in RI: The Framework or K-12 Science Education (2011)
	2. Next Generation Science Standards (revisiting mathematics connections and engineering practices)
1. Topic 3 – How are the big ideas of science and science domains organized in NGSS.

Subtopic 3a – Physics content in grades 1-8Subtopic 3b – Chemistry content in grades 1-8  |
| 1. Topic 4 - Science Curriculum for grades 1-8

Subtopic 4a – Commercial curriculum design in the physical sciencesSubtopics 4b – STEM, STEAM and “maker” spaces for project-based learning* 1. Interdisciplinary instruction of science content
	2. Connections to mathematics – qualitative and quantitative data analysis and representation
	3. Engineering processes (physical and conceptual models)
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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 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 or electronic signature copy of this 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 prposals.

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| Name | Position/affiliation | [Signature](#_19c6y18) | Date |
| Carolyn Obel-Omia | Chair of Elementary Education |  |  |
| Ying Hui-Michael | Chair of Special Education |  |  |
| Julie Horwitz/Gerri August | Co-Dean of Feinstein School of Education and Human Development |  |  |

##### D.2. [Acknowledgements](#49x2ik5): REQUIRED from OTHER PROGRAMS/DEPARTMENTS IMPACTED BY THE PROPOSAL. SIGNATURE DOES NOT INDICATE APPROVAL, ONLY AWARENESS THAT THE PROPOSAL IS BEING SUBMITTED. CONCERNS SHOULD BE BROUGHT TO THE UCC COMMITTEE MEETING FOR DISCUSSION

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| Name | Position/affiliation | [Signature](#2p2csry) | Date |
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