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| For Academic Affairs and Research Use Only | |
| Proposal Number |  |
| CIP Code: |  |
| Degree Code: |  |

**NEW OR MODIFIED COURSE PROPOSAL FORM**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

|  |
| --- |
| **[X]New Course, [ ]Experimental Course (1-time offering), or [ ]Modified Course (Check one box)** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| Julie B. King 8/7/2020 **Department Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Head of Unit (if applicable)** |
| |  |  | | --- | --- | | Mary Elizabeth Spence | 9/4/2020 | | **Office of Assessment** |  | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| Shanon Brantley 08/26/2020 **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
| \_\_Susan Hanrahan\_\_\_\_\_\_\_\_ 8/27/2020 **College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **General Education Committee Chair (if applicable)** |  |

1. **Contact Person (Name, Email Address, Phone Number)**

Dr. Julie King, juking@astate.edu; 870-932-3920

1. **Proposed starting term and Bulletin year for new course or modification to take effect**

Fall 2021, Bulletin year 2021-2022.

**Instructions:**

*Please complete all sections unless otherwise noted. For course modifications, sections with a “Modification requested?” prompt need not be completed if the answer is “No.”*

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|  | **Current (Course Modifications Only)** | **Proposed (New or Modified)**  *(Indicate “N/A” if no modification)* |
| **Prefix** |  | **OESH** |
| **Number\*** |  | **3113** |
| **Title** |  | **Toxicology** |
| **Description\*\*** |  | Principles of toxicology with industrial and environmental implications and the toxicological effects of certain dangerous substances, chemicals, metals, and environmentally relevant pesticides. |

***\**** (Confirm with the Registrar’s Office that number chosen has not been used before and is available for use. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

\*\*Forty words or fewer as it should appear in the Bulletin.

1. **Proposed prerequisites and major restrictions** **[Modification requested? Yes/No]**

(Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. **Yes** Are there any prerequisites?
   1. If yes, which ones?

Students must be admitted to the OESH major/program.

* 1. Why or why not?

Toxicology is a study of the effects of harmful substances on the body. Students taking this course should also be enrolled in the OESH program.

1. **Yes** Is this course restricted to a specific major?
   1. If yes, which major? Occupational and Environmental Safety and Health
2. **Proposed course frequency [Modification requested? Yes/No]**

(e.g. Fall, Spring, Summer; if irregularly offered, please indicate, “irregular.”) *Not applicable to Graduate courses.*

**Fall**

1. **Proposed course type [Modification requested? Yes/No]**

Will this course be lecture only, lab only, lecture and lab, activity (e.g., physical education), dissertation/thesis, capstone, independent study, internship/practicum, seminar, special topics, or studio? Please choose one.

**Lecture only**

1. **Proposed grade type [Modification requested? Yes/No]**

What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])

**Standard Letter grade**

1. **No** Is this course dual-listed (undergraduate/graduate)?
2. **No** Is this course cross-listed?

*(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross-listed course.)*

**a.** – If yes, please list the prefix and course number of the cross-listed course.

Enter text...

**b.** – **Yes / No** Can the cross-listed course be used to satisfy the prerequisite or degree requirements this course satisfies?

Enter text...

1. **Yes**  Is this course in support of a new program?

a. If yes, what program?

Occupational and Environmental Safety and Health

1. **No** Will this course be a one-to-one equivalent to a deleted course or previous version of this course (please check with the Registrar if unsure)?

a. If yes, which course?

Enter text...

**Course Details**

1. **Proposed outline** **[Modification requested? Yes/No]**

(The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

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| Week | Topic/Assignments |
| 1 | Course Introduction/Basic Principles of Toxicology and Factors That Affect Toxicity |
| 2 | Xenobiotics: Absorption, Distribution, Metabolism, and Excretion (ADME) |
| 3 | Toxicokinetics (ADME) Cont. |
| 4 | Toxicity of the Hematopoietic System and Hepatotoxicity |
| 5 | Nephrotoxicity and Neurotoxicity |
| 6 | Toxic Effects in the Lungs, Skin and Immune System |
| 7 | Developmental Toxicology |
| 8 | Chemical Carcinogenesis |
| 9 | Toxic Properties of Metals: Cadmium and Mercury |
| 10 | Toxic Properties and Effects of Pesticides |
| 11 | Epidemiological issues in Occupational and Environmental Health |
| 12 | Human Health Risk Assessment |
| 13 | Toxicology as it applies to Environmental and Occupational Health |
| 14 | Solvents and Solvent-like chemicals |
| 15 | Nanotoxicology |

1. **Proposed special features** **[Modification requested? Yes/No]**

(e.g. labs, exhibits, site visitations, etc.)

none

1. **Department staffing and classroom/lab resources**

Typical classroom setting

1. Will this require additional faculty, supplies, etc.?  **No**

1. **No** Does this course require course fees?

*If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Justification**

**Modification Justification (Course Modifications Only)**

1. Justification for Modification(s)

Enter text...

**New Course Justification (New Courses Only)**

1. Justification for course. Must include:

a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

A basic understanding of toxicology, the study of the adverse effects of harmful substances on the body, is fundamental to occupational and environmental safety and health. Students should complete this course with a better understanding of why certain chemicals or physical agents are highly regulated in occupational or environmental settings. Students should be able to describe the chemical properties and the biological processes which modulate the toxicokinetics of chemical agents of environmental and industrial importance. They should also be able to understand the basic principles and give specific examples of hepatotoxicity, nephrotoxicity, reproductive and developmental toxicology, skin, pulmonary, and immunotoxicology. Students will also be able to put into perspective the role of toxicology in the risk assessment process.

b. How does the course fit with the mission of the department? If course is mandated by an accrediting or certifying agency, include the directive.

The core mission of the College of Nursing and Health Professions is to provide a comprehensive and quality education to students seeking careers in various areas of health professions including occupational health and safety. The mission for the program in Occupational and Environmental Safety and Health is to train the next generation of environmental health and safety practitioners that will be able to function effectively in industrial settings, the public sector, or academia. Graduates of the program need to have a basic understanding of toxicology. The National Environmental Health Science and Protection Accreditation Council (NEHSPAC/EHAC), the council that we will be seeking accreditation from, mandates that students should must complete separate coursework in toxicology which is considered a part of the core environmental health knowledge areas.

c. Student population served.

This course is a required course for any student to fulfill the requirements for the bachelors of Occupational and Environmental Safety and Health. This course may also be of interest to students in other departments with an interest in toxicology or environmental health.

d. Rationale for the level of the course (lower, upper, or graduate).

Students must have completed lower level courses in chemistry and biology to understand the fundamental subjects in toxicology. Allowing this course to be an upper level course ensures that students will have had an opportunity to complete those courses which will form a foundation for the more advanced topics in toxicology.

**Assessment**

**Assessment Plan Modifications (Course Modifications Only)**

1. **Yes / No** Do the proposed modifications result in a change to the assessment plan?

*If yes, please complete the Assessment section of the proposal*

**Relationship with Current Program-Level Assessment Process (Course modifications skip this section unless the answer to #18 is “Yes”)**

1. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

Toxicology is a very learning intensive course bringing together what students have learned in lower level biology and chemistry courses. The learning outcomes can be seen in SLO-1 for the program which is that students will be able to apply a broad base of science knowledge to anticipate, recognize, and quantify environmental health and occupational safety hazards. Many of these hazards are considered toxic and to have adverse effects on the body. Students will be expanding their science knowledge base beyond the basic chemistry and biology and critical thinking skills will be emphasized.

1. Considering the indicated program-level learning outcome/s (from question #19), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

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| **Program-Level Outcome 1 (from question #23)** | Students will be able to apply a broad base of science, mathematics, and communication knowledge to anticipate, recognize, and quantify environmental health and occupational safety hazards. |
| Assessment Measure | Direct measure: OESH 4003 Internship and OESH 4401 Senior Seminar act as a capstone to the program. Internship preceptors and instructors will be given a detailed evaluation form to fill out upon internship completion to assess for critical thinking skills in anticipating, recognizing and evaluating environmental health and occupational safety hazards. Students will also be given mock certification exams in either environmental health or occupational safety in the OESH 4401 Senior Seminar course. The grade outcomes of these exams will also be used to assess the program. Indirect measures: Students will be given program exit surveys in the OESH 4401 Senior Seminar course to assess the program. |
| Assessment  Timetable | Annually |
| Who is responsible for assessing and reporting on the results? | Course faculty and Dr. Julie King, Assistant Professor of Occupational and Environmental Safety and Health, Program Chair, juking@astate.edu, 870-932-3920. |

*(Repeat if this new course will support additional program-level outcomes)*

**Course-Level Outcomes**

1. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

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| **Outcome 1** | Describe the chemical properties and the biological processes which modulate the toxicokinetics of chemical agents of environmental and industrial importance |
| Which learning activities are responsible for this outcome? | Lectures  Homework assignments,  Written assignments  Discussion board posts |
| Assessment Measure | Final exam rubric benchmark 80% |

*(Repeat if needed for additional outcomes)*

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| **Outcome 2** | Describe the relationship of dose – response, NOEL, LOEL, NOAEL, LOAEL, and describe procedures and methods for determining the toxicological parameters |
| Which learning activities are responsible for this outcome? | Lectures  Homework assignments,  Written assignments  Discussion board posts |
| Assessment Measure | Final exam rubric benchmark 80% |

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| **Outcome 3** | Understand the basic principles and give specific examples of hepatotoxicity, nephrotoxicity, reproductive and developmental toxicology, skin, pulmonary, and immunotoxicology |
| Which learning activities are responsible for this outcome? | Lectures  Exams  Homework assignments,  Written assignments  Discussion board posts |
| Assessment Measure | Discussion board rubric benchmark 85% |

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| **Outcome 4** | Describe the principles of determining the theoretical expertise on the mutagenic, teratogenic, and carcinogenic effects of toxic substances |
| Which learning activities are responsible for this outcome? | Lectures  Exams  Homework assignments,  Written assignments  Discussion board posts |
| Assessment Measure | Final Exam rubric benchmark 80% |

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| **Outcome 5** | Obtain knowledge of current legislation on health protection while working with chemical agents and management of toxic substances under SDS and the new REACH legislation |
| Which learning activities are responsible for this outcome? | Lectures  Exams  Homework assignments,  Written assignments  Discussion board posts |
| Assessment Measure | Final paper rubric benchmark 80% |

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| **Outcome 6** | Put into perspective the role of toxicology in the risk assessment process |
| Which learning activities are responsible for this outcome? | Lectures  Exams  Homework assignments,  Written assignments  Discussion board posts |
| Assessment Measure | Final paper rubric benchmark 80% |

**Bulletin Changes**

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| **Instructions** |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Please include a before (with changed areas highlighted) and after of all affected sections.**  **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.** |

**Major in Occupational and Environmental Safety and Health**

*Bachelor of Science*

A complete 8-semester degree plan is available at [https://www.astate.edu/info/academics/degrees/](http://www.astate.edu/info/academics/degrees/)

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| **University Requirements:** |  |
| See University General Requirements for Baccalaureate degrees (p. 42) |  |
| **First Year Making Connections Course:** | **Sem. Hrs.** |
| UC 1013, Making Connections | **3** |
| **General Education Requirements:** | **Sem. Hrs.** |
| See General Education Curriculum for Baccalaureate degrees (p. 78)  **Students with this major must take the following:**  *MATH 1023, College Algebra or MATH course that requires MATH 1023 as a prerequisite*  *CHEM 1013 and CHEM 1011 General Chemistry and Lab*  *BIO 2013 and BIO 2011 Biology of the Cell and Lab*  *COMS 1203, Oral Communication (Required Departmental Gen. Ed. Option)* | **35** |
| **Major Requirements:** | **Sem. Hrs.** |
| OESH 3013 Fundamentals of Occupational Safety | 3 |
| OESH 3023 Principles of Environmental Health | 3 |
| OESH 3103 Recognition of Occupational Hazards | 3 |
| OESH 3113 Toxicology | 3 |
| OESH 3203 Control of Occupational Hazards | 3 |
| OESH 3223 Industrial Hygiene Sampling and Analysis Laboratory | 3 |
| OESH 3303 Water, wastewater, Solid and Hazardous Waste Treatment | 3 |
| OESH 3313 Epidemiology and Biostatistics | 3 |
| DPEM 3503 Principles of Disaster Preparedness and Emergency Management | 3 |
| OESH 4003 OESH Internship | 3 |
| OESH 4013 OSHA Standards and Practices | 3 |
| OESH 4113 Environmental Health and Safety Management | 3 |
| OESH 4203 Principles of Food Safety and Sanitation | 3 |
| OESH 4213 Construction Safety | 3 |
| OESH 4223 Accident Investigation and Analysis | 3 |
| OESH 4303 Environmental Risk Assessment | 3 |
| OESH 4313 Ergonomics | 3 |
| OESH 4323 Air Pollution | 3 |
| OESH 4401 OESH Senior Seminar | 1 |
| POSC 4533 Environmental Law and Administration | 3 |

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**Occupational and Environmental Safety and Health (OESH)**

**OESH 3113 Toxicology** - Principles of toxicology with industrial and environmental implications and the toxicological effects of certain dangerous substances, chemicals, metals, and environmentally relevant pesticides. Admission to the Occupational and Environmental Safety and Health Program required. Fall.