

FLORIDA STATE COLLEGE AT JACKSONVILLE  
COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: ISC 1075

COURSE TITLE: Principles of Science and Investigation

PREREQUISITE(S): None

COREQUISITE(S): None

CREDIT HOURS: 3

CONTACT HOURS/WEEK: 3

CONTACT HOUR BREAKDOWN:

Lecture/Discussion: 3

Laboratory:

Other \_\_\_\_\_:

FACULTY WORKLOAD POINTS: 3

STANDARDIZED CLASS SIZE ALLOCATION: 30

CATALOG COURSE DESCRIPTION:

An interdisciplinary study of selected topics in the biological and physical sciences and their impact upon man and society, with the course format including seminar, discussion and projects. Topics will vary.... genetics, tissue culture, space, Malthusian theory, light, sound, and mechanics.

SUGGESTED TEXT(S):

Integrated Science, 2<sup>nd</sup> Edition; Tillery, Enger, and Cross  
McGraw Hill: ©2004, ISBN 0072467002

Taking Sides: Clashing Views on Controversial Issues in  
Science, Technology, and Society, 6th Edition;  
Thomas A Easton; McGraw Hill: ©2005, ISBN 007291713X

Readings in the Philosophy of Science: From Positivism to  
Postmodernism, 1st Edition; Theodore Schick, MUHLENBERG  
COLLEGE, McGraw Hill: ©2000, ISBN 0767402774

Other readings at discretion of instructor

IMPLEMENTATION DATE: Summer Term, 2006 (20063)

REVIEW OR MODIFICATION DATE:

| COURSE TOPICS   | CONTACT HOURS<br><u>PER TOPIC</u> |
|---|-----------------------------------|
| I. Topic  |                                   |
| II. Nature of Science   | 3                                 |
| III. The Unity of Science   | 1                                 |
| IV. Theory and Observation - The Nature of Scientific Theories                | 2                                 |
| V. Science and Non-Science  | 1                                 |
| VI. Ethics in Science   | 6                                 |
| A. <b>Life Science:</b> Medical Treatment                                     |                                   |
| B. <b>Physical Science:</b> Resource Management                               |                                   |
| VII. Science and Technology in Society  | 6                                 |
| A. <b>Life Science:</b> Genetic Engineering                                   |                                   |
| B. <b>Physical Science:</b> Energy Production                                 |                                   |
| VIII. Origins / Evolution   | 6                                 |
| A. <b>Life Science:</b> Biotic Evolution                                      |                                   |
| B. <b>Physical Science:</b> Particle Physics (Big Bang)                       |                                   |
| IX. Environmental issues  | 6                                 |
| A. <b>Life Science:</b> Population  |                                   |
| B. <b>Physical Science:</b> Pollution   |                                   |
| X. Contemporary Issues and Applications (at the discretion of the instructor) | 14                                |
| Total Hours   | 45                                |

Topics chosen should reflect the multi-disciplinary nature of science: 25% Life Science, 25% Physical Science, 50% applicable to both.



|  |   |  |   |  |   |  |                                     |                                     |            |
|--|---|--|---|--|---|--|-------------------------------------|-------------------------------------|------------|
| <b>Course Prefix and Number: ISC 1075</b>  |   | <b>Semester Credit Hours: 3</b>                          |   |  |   |  |                                     |                                     |            |
| <b>Course Title: Principles of Science and Investigation</b>   |   |  |   |  |   |  |                                     |                                     |            |
| <b>Discipline Area for the Course:</b>   |   |  |   |  |   |  |                                     |                                     |            |
| <input type="checkbox"/> Communication   |   | <input type="checkbox"/> Mathematics                     |   | <input type="checkbox"/> Social & Behavioral Sciences            |   |  |                                     |                                     |            |
| <input type="checkbox"/> Humanities & Visual/Performing Arts   |   | <input checked="" type="checkbox"/> Natural Sciences     |   | <input type="checkbox"/> Other-Designated Option                 |   |  |                                     |                                     |            |
| <b>INTELLECTUAL COMPETENCIES:</b>  |   |  |   |  |   |  |                                     |                                     |            |
| <input checked="" type="checkbox"/> Reading  | <input checked="" type="checkbox"/> Speaking  | <input checked="" type="checkbox"/> Critical Analysis    | <input checked="" type="checkbox"/> Quantitative Skills | <input checked="" type="checkbox"/> Scientific Method of Inquiry |   |  |                                     |                                     |            |
| <input checked="" type="checkbox"/> Writing  | <input checked="" type="checkbox"/> Listening | <input checked="" type="checkbox"/> Information Literacy | <input checked="" type="checkbox"/> Ethical Judgment    | <input checked="" type="checkbox"/> Working Collaboratively      |   |  |                                     |                                     |            |
| <b>KNOWLEDGE</b>   |   |  | <b>Standard</b>   | <b>N/A</b>   | <b>VALUE</b>  |  | <b>Primary</b>                      | <b>Standard</b>                     | <b>N/A</b> |
| A. Global and Historical Knowledge & Understanding   |   |  |   |  | Intellectual honesty  |  | <input checked="" type="checkbox"/> |                                     |            |
| • Comprehends a general knowledge of the nature, origins and contributions of major civilizations                          |   |  |   | <input checked="" type="checkbox"/>                              | Curiosity and openness to new ideas                                 |  | <input checked="" type="checkbox"/> |                                     |            |
| • Comprehends the workings and interrelations of personal, business and government economies                               |   |  |   | <input checked="" type="checkbox"/>                              | Recognition of one's own creative potential                         |  |                                     | <input checked="" type="checkbox"/> |            |
| • Comprehends political, social and economic systems and their effects upon society  |   |  |   | <input checked="" type="checkbox"/>                              | Acceptance of and respect for differences among people and cultures |  |                                     | <input checked="" type="checkbox"/> |            |
| B. Cultural and Aesthetic Knowledge and Understanding  |   |  |   |  | Civic Engagement  |  |                                     | <input checked="" type="checkbox"/> |            |
| • Comprehends the contributions of the arts and humanities to the human experience on a personal, national or global level |   |  |   | <input checked="" type="checkbox"/>                              | Lifelong Learning   |  | <input checked="" type="checkbox"/> |                                     |            |
| • Comprehends the historical development of the arts and sciences  |   |  | <input checked="" type="checkbox"/>                     |  |   |  |                                     |                                     |            |
| • Comprehends religious and cultural systems and their effects upon society  |   |  |   | <input checked="" type="checkbox"/>                              |   |  |                                     |                                     |            |
| C. Human Awareness and Understanding   |   |  |   |  |   |  |                                     |                                     |            |
| • Comprehends the dynamics of human behavior and the process of increasing self-awareness, growth and development          |   |  |   | <input checked="" type="checkbox"/>                              |   |  |                                     |                                     |            |
| • Comprehends the stages of human development and the dynamics of human relationships in diverse cultures                  |   |  |   | <input checked="" type="checkbox"/>                              |   |  |                                     |                                     |            |
| • Comprehends the factors that promote physical, mental and social well-being  |   |  |   | <input checked="" type="checkbox"/>                              |   |  |                                     |                                     |            |
| D. Mathematics, Science and Technology   |   |  |   |  |   |  |                                     |                                     |            |
| • Comprehends the basic concepts and investigative processes of the natural sciences                                       |   |  | <input checked="" type="checkbox"/>                     |  |   |  |                                     |                                     |            |
| • Comprehends the breadth, significance and development of the mathematical sciences                                       |   |  |   | <input checked="" type="checkbox"/>                              |   |  |                                     |                                     |            |
| • Comprehends the ways science and technology have shaped and continue to reshape human cultures and the environment       |   |  | <input checked="" type="checkbox"/>                     |  |   |  |                                     |                                     |            |

Name of Person Completing This Form: Nancy Yurko  
 Signature: \_\_\_\_\_ Date: 11/30/05



NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

|   |  |
|---|--|
| <b>Section 1</b>  |  |
| <b>COURSE PREFIX AND NUMBER:</b> <u>ISC 1075</u>                    | <b>SEMESTER CREDIT HOURS:</b> <u>3</u> |
| <b>COURSE TITLE:</b> <u>Principles of Science and Investigation</u> |  |

|  |   |
|--|---|
| <b>Section 2</b>   |   |
| <b>TYPE OF COURSE: (Click on the box to check all that apply)</b>  |   |
| <input checked="" type="checkbox"/> AA Elective  | <input type="checkbox"/> AS Required Professional Course  |
| <input type="checkbox"/> AS Professional Elective  | <input type="checkbox"/> AAS Required Professional Course |
| <input type="checkbox"/> Other _____   | <input type="checkbox"/> College Prep                     |
| <input checked="" type="checkbox"/> General Education: (For General Education courses, you must also complete Section 3 and Section 7) | <input type="checkbox"/> Technical Certificate            |

|  |   |
|--|---|
| <b>Section 3 (If applicable)</b>   |   |
| <b>INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:</b> |   |
| <input type="checkbox"/> Communication                                   | <input type="checkbox"/> Social & Behavioral Sciences |
| <input checked="" type="checkbox"/> Natural Sciences                     | <input type="checkbox"/> Humanities                   |
| <input type="checkbox"/> Mathematics                                     |   |

|  |   |
|--|---|
| <b>Section 4</b>   |   |
| <b>INTELLECTUAL COMPETENCIES:</b>                                |   |
| <input checked="" type="checkbox"/> Reading                      | <input checked="" type="checkbox"/> Speaking                |
| <input checked="" type="checkbox"/> Writing                      | <input checked="" type="checkbox"/> Listening               |
| <input checked="" type="checkbox"/> Critical Analysis            | <input checked="" type="checkbox"/> Information Literacy    |
| <input checked="" type="checkbox"/> Quantitative Skills          | <input checked="" type="checkbox"/> Ethical Judgment        |
| <input checked="" type="checkbox"/> Scientific Method of Inquiry | <input checked="" type="checkbox"/> Working Collaboratively |

| <b>Section 5</b>         |   |  |
|--------------------------|---|--|
| <b>LEARNING OUTCOMES</b> |   | <b>METHOD OF ASSESSMENT</b>  |
| •                        | Explain and apply major concepts in natural sciences including scientific process, matter, thermodynamics, energy, cycles, evolution, ecology, scientific ethics and the relationship of science and society. | Written tests, reports and/or use of equipment to demonstrate student competency in field.   |
| •                        | Demonstrate knowledge of scientific method.   | Formulate problem, make observations, derive and test hypothesis and make conclusions.   |
| •                        | Communicate scientific ideas through oral or written assignments.   | Students use analytical reasoning skills to solve problems on written tests and/or laboratory work..   |
| •                        | Interpret scientific models such as formulas, graphs, tables and schematics, draw inferences from them and recognize their limitations.   | Written reports of lab experiments and/or written tests demonstrate student competency in the application of scientific knowledge.   |
| •                        | Demonstrate problem solving methods in situations that are encountered outside of the classroom.  | Students use demonstrations, group discussions, written tests, laboratory reports, research projects and/or field experiences to illustrate competence in recognizing and evaluating scientific processes. |
| •                        | Understand scientific principles as applied to daily options and opportunities.   | Students prepare evaluations of legal opinions, voter decisions and community actions, focusing on scientific significance.  |

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| <b>Section 6</b>  |
| Name of Person Completing This Form: <u>Nancy Webster Yurko November 30, 2005</u> |