COURSE DESCRIPTION

<table>
<thead>
<tr>
<th>Dept., Number</th>
<th>CS1301</th>
<th>Course Title</th>
<th>Introduction to Computer Science</th>
</tr>
</thead>
</table>

| Approval Date | September 2018 | Course Coordinator | Martine Ceberio |

CATALOG DESCRIPTION

Introduction to Computer Science. This class will help Computer Science majors to be active learners, understand the motivations for computing, basic concepts of algorithms, basic computer organization, and impacts of computing, develop problem-solving skills, implement solutions to computing problems in a high-level programming language, and build team skills, critical-thinking skills, and professionalism.

TEXT BOOK


COURSE OUTCOMES

Level 1: Knowledge and Comprehension:
Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. Upon successful completion of this course, students will be able to describe, at a high level:

1. The history of computing
2. The relation between computing and society, including social, ethical, and legal issues
3. Computing as a profession, from required knowledge and skills to major career options
4. The relation between computing and society, including main social, ethical, and legal issues
5. Computer representation of simple data types and operations, including operations with binary numbers
6. Differences among programming languages
7. Pseudocode of the use of Multi-D arrays
8. Pseudocode of the use of Linked lists

Level 2: Application and Analysis:
Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details. Upon successful completion of this course, students will be able to:

1. To analyze problems and express solution algorithms in pseudocode, including a correct use of:
   a. Arithmetic and logical expressions
   b. Simple I/O operations
   c. User-defined subprograms, including recursive methods
   d. User-defined types
2. To use testing and debugging strategies, including black-box and white-box testing, test drivers, stubs and test suites, to identify software faults
3. Use teamwork roles and methods in the classroom

Level 3: Synthesis and Evaluation:
Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. Upon successful completion of this course, students will be able to use the syntax and semantics of a higher-level language to express solutions to programming problems, including the correct use of:

1. Basic variable types such as integer, real number, character, string, 1-D array
2. Assignment, arithmetic, and logical operations
3. Basic control structures: if-then, for-loop, while-loop

ABET STUDENT OUTCOMES

<table>
<thead>
<tr>
<th>Course outcomes</th>
<th>Student Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4, 2.1.c, 3.2</td>
<td>1</td>
</tr>
<tr>
<td>1.4, 1.6, 1.7, 2.1a-d</td>
<td>2 (ABET 1)</td>
</tr>
<tr>
<td>2.1a-d, 2.2, 3.1, 3.2, 3.3</td>
<td>3 (ABET 2)</td>
</tr>
<tr>
<td>2.3</td>
<td>4 (ABET 5)</td>
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<tr>
<td>1.2, 1.3</td>
<td>5 (ABET 4)</td>
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<tr>
<td>None</td>
<td>6 (ABET 3)</td>
</tr>
<tr>
<td>1.2</td>
<td>7</td>
</tr>
<tr>
<td>None</td>
<td>8</td>
</tr>
<tr>
<td>2.2</td>
<td>9</td>
</tr>
<tr>
<td>None</td>
<td>10 (ABET 6)</td>
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</table>

PREREQUISITES BY TOPIC

MATH 1508 or MATH 1411 each with a grade of "C" or better. CS1101 co-requisite.