

SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES
Mathematics
Revision Date: 07-01-24

I. CATALOG DESCRIPTION

Course Number: CSCI2790
Course Title: Special Topics in Computing: Paradigms and Languages
Prerequisite(s): CSCI 1550 or permission from the Associate Dean and/or instructor
Catalog Description: This course explores special topics relevant to computer science, software engineering, data science, and computer engineering. This implementation of the class is considered equivalent by UNL faculty to CSCE 322.
Credit Hours: 3
Class Hours: 0
Lab Hours: 0
Total Contact Hours: 3

II. COURSE OBJECTIVES:

1. Empower students to better understand the structure of data.
2. To explore particular programming computing paradigms in greater depth.
3. (Further) Develop language agnostic computation thinking skills.
4. Familiarize students with important syntactic language constructs.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
1. Explore different computing paradigms.
 2. Gain a deeper understanding of differing computing paradigms.
 3. Further cultivate language, agnostic, and problem-solving skills.
- B. General Education Learning Outcomes
1. GELO #5: Analytical, Quantitative, and Scientific Reasoning
Outcome: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.
Outcome: Implement strategies, algorithms, or experiments (or perform experiments) to describe the systems or solve problems.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

- A. Languages
- B. Paradigms
1. General constructs
 2. Language-specific constructs
- C. Objects and Type
- D. Functions/Methods
- E. Polymorphism
1. Static vs dynamic dispatch
 2. Generics/templates (generic programming)
- F. Abstraction
1. Via data-type
 2. Via dispatch
- G. Modes of scope

H. Mechanisms for modularity

V. INSTRUCTIONAL MATERIALS

A. Other Resources:

1. Resources posted on Canvas. Open Source online resources.

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Group-work
3. Board-work
4. Computer lab
5. Highly structured/stratified homework assignments

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Electronically-submitted homework assignments
2. Engaged class activities
3. Quizzes
4. Exams

B. SCC STANDARD GRADING SCALE POLICY

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		

VIII. SPECIFIC COURSE REQUIREMENTS

A. Almost all the work for this class requires access to computing resources. Said computing resources ought to have particular compilers and/or program managers installed.