MTH or MATH 111Z Precalculus I: Functions

For more detailed information, see CCN Reports & Memos on the Resources for CCN webpage.

CCN Course/Course Information
Math

Course Number and Prefix: MTH or MATH 111Z

Course Title: Precalculus I: Functions

Course Credits: 4

Course Description:

A course primarily designed for students preparing for trigonometry or calculus. This course focuses on functions and their properties, including polynomial, rational, exponential, logarithmic, piecewise-defined, and inverse functions. These topics will be explored symbolically, numerically, and graphically in real-life applications and interpreted in context. This course emphasizes skill building, problem solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of present-day technology.

Learning Outcomes:

At the end of this course, students will be able to:

1. Explore the concept of a function numerically, symbolically, verbally, and graphically and identify properties of functions both with and without technology.
2. Analyze polynomial, rational, exponential, and logarithmic functions, as well as piecewise-defined functions, in both algebraic and graphical contexts, and solve equations involving these function types.
3. Demonstrate algebraic and graphical competence in the use and application of functions including notation, evaluation, domain/range, algebraic operations & composition, inverses, transformations, symmetry, rate of change, extrema, intercepts, asymptotes, and other behavior.
4. Use variables and functions to represent unknown quantities, create models, find solutions, and communicate an interpretation of the results.
5. Determine the reasonableness and implications of mathematical methods, solutions, and approximations in context.

Review Cycle Recommendation:

This Subcommittee recommends the following schedule, structure, and goals for the reflection, maintenance, and enhancement of the recommendations made in this report:

1. Annual CCN Math Subcommittee Check-ins beginning in **Winter 2025** to gather qualitative and/or quantitative data on faculty and student experiences, make requests for institutional and statewide data, discuss challenges, and raise concerns to review the transfer effectiveness of the CCN Math courses. The scope of annual check-ins will focus on the statewide and collaborative nature of this work to facilitate inclusive and equitable conversations and identify potential issues that may require future modifications of the CCN recommendations or framework.

2. Triennial CCN Math Subcommittee Workshops beginning in **Winter 2027** with the purpose of analyzing qualitative and quantitative data, drafting and approving modifications to the CCN Math Recommendations, and problem-solving implementation issues to strive to improve the effectiveness, inclusiveness, equity, and implementation of the recommendations and framework.
3. Efforts and results in engaging statewide entities in supporting and facilitating the work of the CCN Math Subcommittee. Statewide and regional conferences, gatherings, and workgroups, such as the Oregon Mathematical Association of Two Years Colleges (ORMATYC) and Oregon Math Chairs (OMC), are opportunities for data collection, collaboration, and networking critical to the success of the mandates in SB 233. Additionally, the development and maintenance of a statewide working-state repository for sharing inter-institutional information on math pathways, course outlines and updates, math placement practices, prerequisites, curriculum, and other information needed for successful statewide collaborative efforts.
4. Efforts and results in maintaining the continuity of the membership of the CCN Math Subcommittee and in improving equitable representation. The significant impacts of the work produced by this subcommittee necessitate efforts to actively engage all OR CCs and OPUs in this work.