University of Wisconsin-Whitewater
Curriculum Proposal Form #4R

Change in or Deletion of an Existing Course

Type of Action (check all that apply)

☐ Add Cross-listing *
☐ Course Deletion
☐ Number Change
☒ (other) Course Description
☒ Pre-requisite Change
☐ Technological Literacy
☐ Title Change
☐ Writing Requirement

Effective Term: 2147 (Fall 2014)

Current Course Number (*subject area and 3-digit course number)*: COMPSCI 347

Cross-listing ***(if applicable)***:

New Course Number (*subject area and 3-digit course number*)**:**

Cross-listing ***(if applicable)***:

***If adding a cross-listing, include the following:**

Required in the major:

Required in the minor:

Number of credits:

Lab hours/week:

Contact hours/week:

Repeatable

Current Course Title: Scientific Computing

New Course Title:

25-Character Abbreviation *(if new title)*:

Sponsor(s): Leon Arriola and Sobitha Samaranayake

Department(s): Mathematical and Computer Sciences

College(s): Letters and Sciences

List all programs that are affected by this change:

If programs are listed above, will this change affect the Catalog and Advising Reports for those programs? If so, have Form 2's been submitted for each of those programs?
(Form 2 is necessary to provide updates to the Catalog and Advising Reports)

☒ NA ☐ Yes ☐ They will be submitted in the future

Proposal Information: (***Procedures for form #4R***)

I. **Detailed explanation of changes** (use FROM/TO format)

FROM:

Prerequisite: MATH 253 and 254 or consent of the instructor

Course Description:
This course provides the applied scientist with the basic tools needed to perform computing within a scientific context. The computational aspects focus on two major areas: (1) the development and implementation of numerical algorithms in computer programs, and (2) the analysis and visualization of complex data sets. The numerical methods covered include finding roots of nonlinear equations, solving linear systems, the eigenvalue problem, numerical integration, the initial value problem, and data fitting. The high-level computer language used is Matlab.

TO:

Prerequisite: MATH 253 or consent of the instructor

Course Description:
This course provides the applied scientist with the basic tools needed to perform computing within a scientific context. The computational aspects focus on two major areas: (1) the development and implementation of numerical algorithms in computer programs, and (2) the analysis and visualization of complex data sets. The numerical methods covered include finding roots of nonlinear equations, solving linear systems, the eigenvalue problem, numerical integration, the initial value problem, and data fitting. The high-level computer packages used are **Mathematica and** Matlab.

II. **Justification for action**

The prerequisite of Calculus 254 is not needed since all of the necessary mathematical techniques needed will be developed and covered as needed. Also, the addition of Mathematica gives the student familiarity with the powerful symbolic capabilities of Mathematica while Matlab provides a robust numerical environment for applications in linear algebra and dynamical systems.