MTH 228 Calculus & probability for the life sciences II (Fall 2017)

**Instructor:** Patrick De Leenheer, deleenhp@math.oregonstate.edu. Kidder Hall 296.

**TA:** Ricardo Reyes Grimaldo, reyesgrr@math.oregonstate.edu. Kidder Hall 360.

**Time & Place:** MWF 2:00-2:50pm in KEAR 112.

**Office hours:** Wed & Fr noon-1:15pm, or by appointment.

**Catalog Description:** Continuation of MTH 227 with more general population growth models. Antidifferentiation; The Fundamental Theorem of Calculus applied to solving continuous growth models. Continuous random variables. Basic linear algebra of small systems sufficient to calculate eigenvalues and eigenvectors and appreciate their use in life science applications.

**Lec/rec. PREREQS:** MTH 227 [C-] or MTH 251 [C-] or MTH 251H [C-]

**Enforced Prerequisites:** MTH 227 [C-] or MTH 251 [C-] or MTH 251H [C-]


**Grading:** Grades will be determined on the basis of scores of weekly homework assignments (20%), 2 in-class midterms on Friday Oct 20 & Friday Nov 17 (20% each) and 1 comprehensive final exam on a date TBA (40%). Late homework is not permitted under any circumstances. Make-ups are only possible under exceptional circumstances and require written documentation such as a doctor’s note.

**Learning Outcomes:** The 21st century will most likely be the century of the life sciences, just like physics and engineering have been for the past centuries. Mathematics is playing an ever increasing role in current developments in the life sciences. This course will familiarize students with various basic mathematical concepts to make them successful as life scientists. Students will learn about derivatives and their applications in finding extrema, learn about integration and its application to finding the probabilities of events related to continuous random variables. They will also learn elementary properties of linear algebra including vector and matrix operations to help with the parameterization of mathematical models of biological processes, and eigenvalues and eigenvectors to understand how these models behave in the long run. A unifying theme of this course will be the illustration of the acquired conceptual mathematical notions through their application to problems and questions originating in the life sciences.

**Students With Disabilities:** Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

**Student Conduct:** All students are expected to obey to OSUs Student Conduct Code, see http://oregonstate.edu/studentconduct/

See also http://oregonstate.edu/studentconduct/offenses

for information on the consequences of Academic or Scholarly Dishonesty.

**Course drop/add:** Information is at http://oregonstate.edu/registrar/