

**The Ohio State University
Colleges of the Arts and Sciences New Course Request**

Mathematics

Academic Unit

Mathematics

Book 3 Listing (e.g., Portuguese)

615 Applied Differential Equations I

Number Title

App'l'd Diff Eq I

G

3

18-Character Title Abbreviation

Level

Credit Hours

Summer

Autumn

X

Winter

Spring

Year

2009

Proposed effective date, choose one quarter and put an "X" after it; and fill in the year. See the OAA curriculum manual for deadlines.

A. Course Offerings Bulletin Information

Follow the instructions in the OAA curriculum manual. If this is a course with decimal subdivisions, then use one New Course Request form for the generic information that will apply to all subdivisions; and use separate forms for each new decimal subdivision, including on each form the information that is unique to that subdivision. If the course offered is less than a quarter or a term, please complete the Flexibly Scheduled/Off Campus/Workshop Request form.

Description (*not to exceed 25 words*): Modeling by differential equations of physical and biological processes. Topics include explicit solutions, existence and uniqueness, n-dimensional linear ODE systems, geometric theory, bifurcation analysis.

Quarter offered: Autumn Distribution of class time/contact hours: 3 cl.

Quarter and contact/class time hours information should be omitted from Book 3 publication (yes or no): no

Prerequisite(s): Mathematics 255 and Math 568 or permission of instructor

Exclusion or limiting clause:

Repeatable to a maximum of 0 credit hours.

Cross-listed with:

Grade Option (Please check): Letter S/U Progress What course is last in the series? _____

Honors Statement: Yes No

GEC: Yes No

Admission Conditions Course: Yes No

Off-Campus: Yes No

EM: Yes No

Honors Embedded Statement: Yes No

Service Learning Course: Yes No

Other General Course Information:

(e.g. "Taught in English." "Credit does not count toward BSBA degree.")

B. General Information

Subject Code 270301 Subsidy Level (V, G, T, B, M, D, or P) D

If you have questions, please email Jed Dickhaut at dickhaut.1@osu.edu.

1. Provide the rationale for proposing this course:

The level of this course sequence is more advanced than 556-557 and less advanced than 715-717. However, the novelty of the course stems primarily from the applied point of view being adopted. For example, the introduction of PDEs is motivated by examples in mechanics and biology, and it is shown how the mathematical development helps one gain better understanding of the physical and biological models. Another example stems from neuroscience where the ODE analysis of bifurcation theory is shown to be important to understanding of the nervous system.

2. Please list Majors/Minors affected by the creation of this new course. Attach revisions of all affected programs. This course is (check one): Required on major(s)/minor(s) A choice on major(s)/minor(s)
 An elective within major(s)/minor(s) A general elective

3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course.
 The Mathematics Department is broadening and revitalizing the current MS program in Mathematics by admitting students specifically for that degree. This sequence (615-617) would be required for these students, whereas the current 700-level sequence is too advanced. Since new MS students will replace other graduate admissions, student numbers will remain the same, so no new funding will be required.

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?

Yes No List: 616, 617

5. If this course is part of a sequence, list the number of the other course(s) in the sequence: 616, 617

6. Expected Section Size: 25 Proposed number of sections per year: 1

7. Do you want prerequisites enforced electronically? (see OAA manual for what can be enforced) Yes No

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (*List units and attach letters and/or forms*): Not Applicable

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA curriculum manual and e-mail to ascurofc@osu.edu.

CONTACT PERSON: Janet Best E-MAIL: jbest@math.osu.edu PHONE: 292-5894

Approval Process The signatures on the lines in ALL CAPS (e.g. ACADEMIC UNIT) are required.

	Printed Name	Date
1. Academic Unit Undergraduate Studies Committee Chair	<u>C Herbert Clemens</u>	<u>12/16/08</u>
2. Academic Unit Graduate Studies Committee Chair	<u>David Ross</u>	<u>12/16/08</u>
3. ACADEMIC UNIT CHAIR/DIRECTOR		
4. After the Academic Unit Chair/Director signs the request, forward the form to the ASC Curriculum Office, 4132 Smith Lab, 174 West 18 th Ave. or fax it to 688-5678. Attach the syllabus and any supporting documentation in an e-mail to ascurofc@osu.edu . The ASC Curriculum Office will forward the request to the appropriate committee.		
5. COLLEGE CURRICULUM COMMITTEE		
6. ARTS AND SCIENCES EXECUTIVE DEAN		
7. Graduate School (if appropriate)		
8. University Honors Center (if appropriate)		
9. Office of International Education (if appropriate)		
10. ACADEMIC AFFAIRS		