Dr. Donald Adongo, FH 6A-2

dadongo@murraystate.edu**, 809-2490**

Office Hours: MWF 10:30 – 11:20 am; or by appointment

Section 1 CRN 84875

Meeting: 11:30 am – 12:20 pm MWF FH 307

http://campus.murraystate.edu/faculty/dadongo

DEPARTMENT: **Mathematics and Statistics**

COURSE PREFIX: MAT   **COURSE NUMBER:** 506   **CREDIT HOURS:** 3

I.   TITLE:
Mathematical Modeling I

II. COURSE DESCRIPTION AND PREREQUISITE(S):
A study of mathematical models used in the social, life and management sciences and their role in explaining and predicting real world phenomena. The emphasis is on developing skills of model building. Topics include difference equations, perturbation theory and non-dimensional analysis.
Prerequisite(s): MAT 338.

III. COURSE OBJECTIVES:
The student will:
A. Have a mastery of dimensional analysis;
B. Have a mastery of perturbation theory;
C. Have a mastery of the calculus of variations;
D. Have introductory knowledge of applied mathematics techniques in mathematical biology.

IV. CONTENT OUTLINE:
A. Dimensional analysis
B. Perturbation theory
C. Calculus of variations
D. Linear programming
E.   Discrete models in mathematical biology

V. INTRUCTIONAL ACTIVITIES:
Primarily lectures.

VI. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:
Attendance at the Math and BioMaPS seminars is encouraged (*required for MAT 606*). Times/dates will be announced in class

VII. TEXT(S) AND RESOURCES:
Mathematical Modeling with Excel, Brian Albright, Jones and Bartlett Publishers.

VIII. EVALUATION AND GRADING PROCEDURES:
Course grades are determined by students' performance on homework assignments, projects, and the final project, along with participation. Homework assignments are worth 30%, projects are worth 30%, and the final project is worth 40%.

Grading Scale: 90-100 %   A
                 80-89 %   B
                 70-79 %   C
                 60 – 69 %   D
                 Below 60 %   E

Projects: There will be three projects in this course. Each project will be worth 100 points. The projects will be handed out on **September 11, October 2,** and **October 23**. They will be due at the beginning of class one week later.

Final Project: The final project will be given out **November 25**, and will be due at our scheduled final exam time (10:30 am, Tuesday December 10).

Homework: Homework will be collected every Wednesday and is due at the beginning of class. Late homework will not be accepted but the lowest homework score will be dropped.

Reading: You are expected to come to class having completed the relevant reading. You should be prepared to *discuss* the material in the current sections.

Important Grade-dates: The last day to drop a course without receiving a grade (or a W) is Monday, August 26. The last day to drop individual courses and receive a grade of "W" (no penalty) is Friday, November 15. The last day to change a full semester class from AUDIT to CREDIT is Monday, August 26. The last day to change a full semester class from CREDIT to AUDIT is Friday, November 15.

No classes during Labor day September 2, Fall Break September 26-27, and Thanksgiving break November 27-29.

B. **Auditing**: I do not allow audits in 500+ level classes.

Graduate Students: Students taking the class as MAT 606 will be required to do substantially more work in this course. This will involve students working additional problems for homework and projects.

IX. ATTENDANCE POLICY:
Students are expected to adhere to the MSU Attendance Policy outlined in the current MSU Bulletins.
If you miss class, it is your responsibility to obtain the day's notes and assignments. The lecture will not be repeated for you during office hour.

X. ACADEMIC HONESTY POLICY:
Murray State University takes seriously its moral and educational obligation to maintain high standards of academic honesty and ethical behavior. Instructors are expected to evaluate students' academic achievements accurately, as well as ascertain that work submitted by students is authentic and the result of their own efforts, and consistent with established academic standards. Students are obligated to respect and abide by the basic standards of personal and professional integrity.

Violations of Academic Honesty include:
   Cheating - Intentionally using or attempting to use unauthorized information such as books, notes, study aids, or other electronic, online, or digital devices in any academic exercise; as well as unauthorized communication of information by any means to or from others during any academic exercise.
   Fabrication and Falsification - Intentional alteration or invention of any information or citation in an academic exercise. Falsification involves changing information whereas fabrication involves inventing or counterfeiting information.
   Multiple Submission - The submission of substantial portions of the same academic work, including oral reports, for credit more than once without authorization from the instructor.
   Plagiarism - Intentionally or knowingly representing the words, ideas, creative work, or data of someone else as one's own in any academic exercise, without due and proper acknowledgement.

Instructors should outline their expectations that may go beyond the scope of this policy at the beginning of each course and identify such expectations and restrictions in the course syllabus. When an instructor receives evidence, either directly or indirectly, of academic dishonesty, he or she should investigate the instance. The faculty member should then take appropriate disciplinary action.

Disciplinary action may include, but is not limited to the following:
   1) Requiring the student(s) to repeat the exercise or do additional related exercise(s).
   2) Lowering the grade or failing the student(s) on the particular exercise(s) involved.
   3) Lowering the grade or failing the student(s) in the course.
   If the disciplinary action results in the awarding of a grade of E in the course, the student(s) may not drop the course.

Faculty reserve the right to invalidate any exercise or other evaluative measures if substantial evidence exists that the integrity of the exercise has been compromised. Faculty also reserve the right to document in the course syllabi further academic honesty policy elements related to the individual disciplines.

A student may appeal the decision of the faculty member with the department chair in writing within five working days. Note: If, at any point in this process, the student alleges that actions have taken place that may be in violation of the Murray State University Non-Discrimination Statement, this process must be suspended and the matter be directed to the Office of Equal Opportunity. Any appeal will be forwarded to the appropriate university committee as determined by the Provost.

Note: Faculty reserve the right to invalidate any examination or other evaluative measures if substantial evidence exists that the integrity of the examination has been compromised.

In this Course, violations of Academic Honesty will result in a failing grade awarded on the particular exercise involved.

XI. NON-DISCRIMINATION POLICY STATEMENT:

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. For more information, contact the Executive Director of Institutional Diversity, Equity and Access, 103 Wells Hall, (270) 809-3155 (voice), (270) 809-3361 (TDD).

XII. Other required departmental or collegiate committee information

Electronic Communication Policy: It is the default policy of the Department of Mathematics and Statistics that, without the prior consent of the course instructor, no device may be used for electronic communication in class. This shall include cell phones, smart-phones, computers, laptops, and tablets. In addition, this includes verbal calling, incoming calls, email, text messaging, the use of cell phone calculators on tests and quizzes, and the use of the wireless capabilities of calculators or other electronic devices. Unless given special permission in advance from the course instructor for potential cases of emergency or critical family situations, cell phones must be kept on silent and out of sight (i.e. secured to a person's belt or kept in a bag or purse away from desks). Should a student's cell phone be visible, ring, or should the student be engaged in some other form of unauthorized usage that the course instructor finds to be disruptive to the class, the student may be asked to leave class and not return for that class period, and be counted absent for that day. Similar restrictions and penalties apply to use of other electronic devices, unless permitted by the instructor for that class period.

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Please fill out this portion, detach and return to the instructor by **Friday August 23, 2013**.

By my signature below, I certify that I have received a copy of the course syllabus for MAT 506-(01) taught by Dr. Donald Adongo during the Fall 2013 Semester. Furthermore, I certify that I have read and understand the contents of the course syllabus.

 Printed Name: ....

Signature: ....

Date: ....