Dr. Donald Adongo, FH 6A-2

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

Office Hours: MWF 12:30 – 1:20 pm; and by appointment

Section 1 CRN 11720

Meeting: 11:30 am – 12:20 pm MWF FH 108

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

DEPARTMENT: Mathematics and Statistics

COURSE PREFIX: MAT   **COURSE NUMBER: 442**   **CREDIT HOURS: 3**

I.   TITLE:
Introduction to Numerical Analysis

II.   COURSE DESCRIPTION AND PREREQUISITE(S):
Taylor polynomial approximation, numerical root finding methods and fixed-point iteration, polynomial and spline interpolation, numerical differentiation and integration, and direct methods for the solutions of linear systems.
Prerequisite(s): MAT 308 or consent of instructor.

III.   COURSE OBJECTIVES:
The student will:
A.   Approximate solutions to problems by using numerical methods.
B.   To carefully evaluate the domain or acceptable inputs of an algorithm and assess the plausibility of its output.
C.   Assess the error associated with a method.
D.   Develop techniques for reducing error in a numerical method.
E.   Rigorously prove or derive a numerical method.
F.   Implement a numerical algorithm in a computer language system).

IV.   CONTENT OUTLINE:
A.   Computer Representation of numbers;
B.   Locating Roots of Equations;
C.   Interpolation;
D.   Solution of system of linear equations;
E.   Numerical differentiation and integration;
F.   Taylor Polynomials

V.   INSTRUCTIONAL ACTIVITIES:
Lecture, daily assignments, group work, projects, reading assignments, oral presentations.

VI.   FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:
Using Software e.g. MatLab, to simulate problems.

VII.   TEXT(S) AND RESOURCES:
Numerical Mathematics and Computing, sixth edition by Ward Cheney and David Kincaid 2008; Thomson Brooks/Cole.

VIII.   EVALUATION AND GRADING PROCEDURES:
A.   Your grade will be based on EXAM grades, HOMEWORK grades, Project (Computer) grades, and the FINAL EXAM. Forty percent of the course grade will come from 4 major exams (each exam counts 10 percent of the grade) and twenty percent of the course grade will come from the final exam. The homework grade will contribute 20 percent while the project grade is worth 20 percent of the course grade. The grading scale will be:

Grading Scale:

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

Exams: The Exams will test your comprehension of concepts and skills not covered on a previous exam. Exams may contain both problem-solving questions and essay questions. Exams occur for everyone (to be fair to everyone) on the scheduled date. Sometimes, however, extenuating circumstances do exist. If you absolutely must miss an exam, you are to stop by or call me (or leave a message with the office if I am not in when you call) before the exam to tell me why you cannot be at the exam. In addition, you must complete the "missed exam form" (see the course website) within one week. If you do not, you will get a zero on that exam with no opportunity to make it up. An excused missed exam will be made up in my office within two weeks (an extension may be granted in rare cases), with the grade to be determined as explained at that time. Our four semester exams will be **February 14**, **March 5**, **April 2**, and **April 21**.

Final: The Final will be a comprehensive exam covering any material addressed that semester. The Final exam will be on **Tuesday, May 6th** at **10:30 a.m.** in FH 108.

Homework: Homework will be assigned at the beginning of each section and will also be listed on the course web site. Homework will be collected at least once a week.

 Computer Project: Computer assignments will be given with each chapter involving the computer language © MATLAB. The student is responsible for gaining access to the software (© Matlab) which is available in the computer lab on the first floor of Faculty Hall. A familiarity with Matlab will be one of the goals for this course. Programs and any other work will be submitted in hard-copies.

Important Grade-dates: The last day to drop a course without receiving a grade is Friday, January 17. The last day to drop individual courses and receive a grade of "W" (no penalty) is Tuesday, April 15. The last day to change a full semester class from CREDIT to AUDIT is Tuesday, April 15th, if you qualify for an Audit. (See the Audit policy below.)

No classes during Dr. Martin Luther King Jr. day January 20, and Spring break March 17-21.

 B. **Auditing:** To Audit the course you need my permission. You will be expected to participate in all tests and assignments with a course average of at least 25%, and you will be expected to attend with no more than 5 absences for the whole semester. If you switch to 'Audit' in mid-semester, you must meet all of the requirements of an ordinary auditor (mentioned above). In addition, you may not miss more than 7% of the remaining class periods and you may not have more than 5 absences for the entire semester. Thus, if you have already missed 6 or more class periods, you may not change to 'Audit.' Failure to meet any of these after being granted an Audit will result in the grade 'Au' being changed to an 'E.'

IX.   ATTENDANCE POLICY:
Students are expected to adhere to the MSU Attendance Policy outlined in the current MSU Bulletins.

If you miss class you are responsible for obtaining the day's notes and assignments. You are expected to attend every class period or your grade will suffer (indirectly) if you do not attend. Attendance will be taken. To level the playing field between those who must miss classes because of MSU and those who do not, the only kind of absence which will not be counted in this regard is a university-required absence. Thus, anything else (for instance, being sick and not, going on a job interview, taking care of a sick relative, etc.) will count as one of these absences.
Note the following provisions on arriving late to class or leaving early:

Every two tardies (arriving late) will count as an absence.
Leaving class early will count as an absence unless you provide me with a reason in advance**.**

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 January 17, 2013**.

By my signature below, I certify that I have received a copy of the course syllabus for MAT 442-(01) taught by Dr. Donald Adongo during the Spring Semester of 2014. Furthermore, I certify that I have read and understand the contents of the course syllabus.

Printed Name: ....

Signature: ....

Date: ....