

**MATH- 2A**

*Differential Equations*

**Winter 2019**

**MATH-2A-03** Monday through Friday: 8:30am-9:20am in E31

**INSTRUCTOR:** Dr. Iaroslav Kryliouk **OFFICE:** S76C

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**OFFICE HOURS:** Daily, 9:45am-10:15am in S76; daily, 1:25pm-1:45pm, except Friday, in S76C.

**Tutorial Center: S43**

**Course Description:** Ordinary differential equations and selected applications.

**Text:** *Differential Equations with Modeling Applications*, by Dennis G Zill, Books/Cole, Cengage Learning, 11<sup>th</sup> edition.

**Prerequisites:** MATH-1D with a grade of C or better.

*Reading* your textbook will be essential. The exercise sets are written with the intent to forcing the student to approach problems graphically and numerically, as well as the traditional symbolic (algebraic) approach. There is such variety in the exercise sets, that a few lecture examples often can't illustrate every type of question in the homework. This make the reading a crucial part of the student's day-to-day work. The De Anza College catalog advises students to do at least 2 hours of work outside the classroom for each hour spent in class.

**Technology:** Students must have a graphing calculator. The instructor will use a Texas Instruments TI-84 plus in lectures. Consequently, the TI-84 plus (or TI-84, TI-83+, TI-83) is recommended for the students, but any graphing calculator that has a "table" feature is acceptable. (The old TI-81 and TI-85 models do *not* have a table feature!). *Any calculators that can do symbolic mathematics such as TI-89 or HP-49 are not allowed on exams and quizzes.*

**Quizzes:** There will be 6 quizzes. The lowest score will be dropped.

**Tests:** There will be three (3) tests worth 100 points each. Unless otherwise indicated, the graphics calculator will be required for tests. Material from any lecture, homework assignment, or quiz is fair game on test day. Be advised that all in-class assesments are closed book and closed notes ones.

The tentative schedule (subject to revision) of tests and the material covered is the following:

**Test 1:** Jan 28, Chapter 1, 2

**Test 2:** Feb 20, Chapter 3, 4, 5

**Test 3:** March 21, Chapter 4, 6, 7

**Makeup Tests:** There are no make –up tests, *under any circumstances.* If a test is missed, the percentage on the final exam will replace the score of the missing exam. If a second exam is missed, the grade will be a zero.

The lowest score of 3 regular tests will be replaced by a percentage on the final exam, provided the latter is higher.

**Final Exam:** There will be a mandatory comprehensive two-hour final exam worth 200 points, and this exam *must* be taken during the scheduled exam time on Wednesday, March 27, 7:00am-9:00am, in E31.

**Homework (HW):** Assignments will be given each class period. It is *strongly* recommended that you do complete the homework assignments since you will find them (or similar ones) in the quizzes and exams. You may find some of the problems quite hard because they are about concepts rather than calculations. For this reason it may be very helpful to work on these assignments in small groups. It is your responsibility as a college student to check that your answers and solutions are correct, and to correct any mistakes or misunderstandings. The instructor periodically will collect and grade the small subset of the selected homework problems on the short 24-hour announcement. The turned in homework papers should include solutions of the selected problems only.

**Worksheets (WS):** Regularly students will work on worksheets during the class, which must be finished and turned in for grading at the beginning of the next class.

**Project:** During the quarter students will work in groups of 4-5 students on the application project, which they will present together with the corresponding documentation at the end of the quarter.

**Mini-projects:** From time to time you may have mini-projects. Points earned for mini-projects will apply to your total grade. These are bonus points!

**Attendance:** Attendance will be taken at each session. **You are expected to attend all classes on time.** If you miss 3 class meetings, you may be dropped from the class. However this is your responsibility to drop the course officially if you decide not to attend any longer. The students are responsible for any material covered and any announcements made in their absence.

**Final Grade:** Your final grade will be determined based on the following:

**Grading Scale:**

Quizzes, WS, HW

(80+30+40)	150 pts	X $\geq$ 675 (96.5%)=A+	X $\geq$ 528 (75.5%)=C+
Test 1	100 pts	X $\geq$ 651 (93%)=A	X $\geq$ 490 (70%)=C
Test 2	100 pts	X $\geq$ 626 (89.5%)=A-	X $\geq$ 420 (60%)=D
Test 3	100 pts	X $\geq$ 602 (86%)=B+	X $\leq$ 420 (60%)=F
Project	50 pts	X $\geq$ 577 (82.5%)=B	
<u>Final Exam</u>	<u>200 pts</u>	X $\geq$ 553 (79.0%)=B-	
Total Points	X=700 pts		

Missing ne of the major tests is made up through added weight on the comprehensive final exam. Missing additional test results in a score of zero.

**\*\*\* NO OTHER MAKE-UPS WILL BE GIVEN\*\*\***

A grade of "I" (incomplete) will be given at the instructor's discretion, if:

- i) A student has successfully completed at least 75% of the course work, and
- ii) has shown acceptable evidence which justifies his/her incomplete work.

**Important Dates:**

Monday, Jan 7-Winter quarter classes begin

Saturday, Jan 19-Last day to add for winter quarter

Sunday, Jan 20-Last day to drop a class with no record of “W” (Drop date is enforced)

**Monday, Jan 21-Observance of Martin Luther King’s Jr. Birthday**

**Monday, Jan 28-Test 1** (Ch 1, 2)

Friday, Feb 1-Last day to request P/NP grade

**Feb 15-18, President’s Holiday-Campus Closed**

**Wednesday, Feb 20-Test 2** (Ch 3, 4, 5)

**Friday, March 1-Last day to drop with a “W” (withdraw date is enforced)**

**Thursday, March 21-Test 3** (Chapter 4, 6, 7)

Friday, Mar 22- Last day of classes

**Wednesday, March 27 -Final exam** 7:00am-9:00am, in E31

\*\*\* (N.B.: It is the student’s responsibility to complete the withdrawal process. Student who stop attending class are NOT automatically dropped. A student who stops attending class and does not complete the withdrawal process receives the grade of “F”)

**Academic Misconduct:** Academic dishonesty will not be tolerated. If a student is found cheating on an exam, plagiarizing on writing assignments, or violating other codes of academic integrity, he or she will receive a failing grade for the course and may be reported to the college for an appropriate action. See section on Academic integrity in your current schedule of classes catalog.

**If you are student with a disability:** For information or questions about eligibility, support services or accommodations to disability (physical or learning disability) see contacts below:

Disability Support Service (DSS): Student Services Building (408) 864-8753; TTY 408) 864-8753

Educational Diagnostic Center (EDC): Learning Center West 110; (408) 864-8839

Special Education Division: 864-8407; [www.deanza.edu/specialed](http://www.deanza.edu/specialed)

## TENTATIVE CALENDAR

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
JAN	<b>7</b> Classes start Sec. 1.1	<b>8</b> Sec. 1.1/1.2	<b>9</b> Sec. 1.2	<b>10</b> Sec. 1.3	<b>11</b> Sec. 1.3
JAN	<b>14</b> <i>Quiz 1</i>	<b>15</b> Sec. 2.1	<b>16</b> Sec. 2.2	<b>17</b> Sec.2.3	<b>18</b> Sec. 2.4 <b>Saturday, Jan 19, Last day to add Sunday, Jan 20, Last day to drop with no record</b>
JAN	<b>21</b> <b>Observance of M-L King's Birthday</b>	<b>22</b> Sec. 2.5	<b>23</b> Sec. 2.6	<b>24</b> <i>Quiz 2</i>	<b>25</b> <b>Review for Test 1</b>
JAN / FEB	<b>28</b> <b>Test 1 (Ch 1,2)</b>	<b>29</b> Sec. 3.1	<b>30</b> Sec. 3.2	<b>31</b> Sec. 3.3	<b>1</b> <i>Quiz 3</i> <b>Last day to request Pass/No Pass grade</b>
FEB	<b>4</b> Sec. 4.1	<b>5</b> Sec. 4.2	<b>6</b> Sec. 4.3	<b>7</b> Sec. 4.4	<b>8</b> <i>Quiz 4</i>
FEB	<b>11</b> Sec. 4.6	<b>12</b> Sec. 5.1	<b>13</b> Sec. 5.1	<b>14</b> Sec. 5.2	<b>15</b> <b>Presidents' Holiday-Campus Closed</b>
FEB	<b>18</b> <b>Presidents' Holiday-Campus Closed</b>	<b>19</b> Sec. 5.3 <b>Review for Test 2</b>	<b>20</b> <b>Test 2 (Ch3,4,5)</b>	<b>21</b> Sec. 4.7	<b>22</b> Sec. 4.8
FEB	<b>25</b> Sec. 4.9	<b>26</b> Sec. 6.1	<b>27</b> Sec. 6.2	<b>28</b> Sec. 6.2	<b>1</b> <b>Last day to drop with "W"</b> Sec. 6.3
MAR	<b>4</b> <i>Quiz 5</i>	<b>5</b> Sec. 7.1	<b>6</b> Sec.7.2	<b>7</b> Sec. 7.2	<b>8</b> Sec. 7.3
MAR	<b>11</b> Sec. 7.4	<b>12</b> Sec. 7.4	<b>13</b> <i>Quiz 6</i>	<b>14</b> Sec. 7.5	<b>15</b> Sec. 7.5
MAR	<b>18</b> Sec. 7.6	<b>19</b> Sec. 7.6	<b>20</b> Review For Test 3	<b>21</b> <b>Test 3 (Ch4,6,7)</b>	<b>22</b> <b>Review for FE Classes end</b>
MAR	<b>25</b>	<b>26</b>	<b>27</b> <b>Final Exam 7:00-9:00am</b>	<b>28</b>	<b>29</b>

Section Problems

- 1.1 ##1,5,9,11,13,17,21,23,25,26,27,37,41,47,48,54,55
- 1.2 ##1,3,5,7,11,15,17,19,25,27,29,31,33,35-38,50
- 1.3 ##5,7,9,10,13,18,23,27,26,28,34,35,36
  
- 2.1 ##1,13,15,21,25,29,35,36,39,40,41,42
- 2.2 ##1,3,5,7,9,11,13,15,17,19,21,23,25,30,57
- 2.3 ##1,3,7,9,11,15,17,19,25,27,29,33,53,55
- 2.4 ##1,3,5,9,11,17,21,25,27,29,31,35,37,39,45
- 2.5 ##1,3,5,7,9,11,13,15,17,19,21,25,29,35,37
- 2.6 ##1,3,7,13
  
- 3.1 ##1,3,6,7,8,10,11,13,17,21,23,25,27,29,35,38
- 3.2 ##1,4,5,11,12,13,14,20
- 3.3 ##5,7,8,11,13
  
- 4.1 ##1,3,5,7,9,13,15,17,23,25,26,31,35,39
- 4.2 ##1,3,5,7,9,11,13,15,17,19
- 4.3 ##1,3,5,7,9,11,13,15,17,23,29,31,33,37,39,43-48(all),51
- 4.4 ##1,5,9,13,17,21,25,27,31,37,41,45
- 4.6 ##1,5,9,11,13,15,19,23,27,29
  
- 5.1 ##1,3,5,6,7,9,11,15,16,17-20(all),21,23,25,29,33,34,39-40,45,47
- 5.2 ##1,5,9,11,25
- 5.3 ##1,4,7,15,17
  
- 4.7 ##1,5,9,13,17,19,21,23,25,27,31,34
- 4.9 ##1,3,5,7,9
- 4.10 ##1,3,11,13,15,19
  
- 6.1 ##1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33
- 6.2 ##1,13,15,17,19,21
- 6.3 ##1,3,5,7,9,11,13
- 6.4 ##1,3,7,11
  
- 7.1 ##1,5,9,13,15,17,19,21,25,27,29,31,33,37,41,43
- 7.2 ##1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43
- 7.3 ##1,5,9,13,17,1,21,25,33,37,41,45,47,49- 54(all),55,57,59,61,63,65,67,69,71,73
- 7.4 ##1,3,5,7,9,11,13,15,17,19,21,31,33,36,37,39,47,49,51,53
- 7.5 ##1,3,5,7,9,11,13,15
- 7.6 ##1,3,5,7,13,15

**Student Learning Outcome(s):**

- \*Construct and evaluate differential equation models to solve application problems.
- \*Classify, solve and analyze differential equation problems by applying appropriate techniques and theory.