MTH 164-101A (19469)   **Precalculus II (3 CR.)**   **Fall 2017**

Syllabus

Instructor: Dr. Alexander Krantsberg
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Office: Bisdorf, Room AA 352

Class Time: Wednesdays, 7:30 PM - 10:10 PM
Classroom: Bisdorf , AA 355

Office hours: Monday   1:00 PM-2:00 PM, 6:00 PM-7:00 PM
           Tuesday   3:00 PM-5:00 PM, 7:30 PM-8:30 PM
           Wednesday 1:00 PM-2:00 PM, 6:00 PM-7:00 PM
           Thursday   3:00 PM-5:00 PM, 7:30 PM-8:30 PM

Important Dates

Classes begin	August 21
Drop a class on NOVAConnect with tuition refund	August 21-September 7
Labor Day holiday. College closed.	September 4
Last day to drop a class with a tuition refund or change to audit	September 7
Professional development days for faculty. No classes for students.	October 9-10
Last day to withdraw without grade penalty	October 31
No classes. College offices close at noon	November 22
Thanksgiving holiday. College closed.	November 23-24
No classes. College offices closed.	November 25-26
Final exam week	December 11-17
Final Exam	December 13
Final exams end	December 14

Course Content
(visit http://www.nvcc.edu/academic/coursecont/summaries/MTH164.pdf for details)

Course Description
MTH 164 – Precalculus II presents trigonometry, analytic geometry, and sequences and series. Lecture 3 hours per week.

Course Purpose

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This course is to provide you with the necessary competence in trigonometry, analytic geometry, sequences and series, and use of a graphing utility. MTH 164 is used in conjunction with MTH 163 to prepare the student for Calculus courses.

Prerequisites
   MTH 163- Precalculus I.

Course Objectives
After completion this course, you should be able to:

   A.   Evaluate trigonometric and inverse trigonometric functions
   B.   Use trigonometric formulas to prove trigonometric identities, solve triangles, and
         trig equations
   C.   Graph conic sections
   D.   Create sequences and series (including arithmetic and geometric)
   E.   Use a graphing utility as an aid in problem solving
   F.

Major Topics
   A. Trigonometric Functions
      1. Distance between two points in a plane
      2. Midpoint of a line segment
      3. Unit circle
      4. Circular functions
            a. Definitions
            b. Simple properties (Pythagorean, Reciprocal,
               Complementary)
      5. Formulas for f (x + y), f (2x), f (x/2)
      6. Graphs of trigonometric functions
      7. Inverses of trigonometric functions
      8. Proving trigonometric identifies
      9. Solution of trigonometric equations
      10. DeMoivre's Theorem
   B. Applications of Trigonometric Functions to Triangles
      1. Trigonometric functions for right triangles
      2. Solutions of right triangles
      3. Law of Sines
      4. Law of Cosines
   C. Conic Sections of the form: $Ax^2 + By^2 + Cx + Dy + E = 0$
      1. Parabolas
            a. Finding vertex by completing the square
            b. Graphing
      2. Circles
            a. Finding center and radius by completing the square
            b. Graphing
      3. Ellipses
            a. Find axes and center
            b. Graphing
      4. Hyperbolas
            a. Axes and asymptotes
            b. Graphing
   D. Sequences and Series

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       1. Definitions
       2. Arithmetic Sequences and Series
       3. Geometric Sequences and Series
     EXTRA TOPICS (optional)
       A. Mathematical Induction
       B. Binomial Theorem

Textbook and other Resources

You have several options. Some of them described below.
1. Buy in the Bookstore
   Textbook with MyMathLab access card
   Precalculus, 5th Edition, by Robert Blitzer. ($170.55)
2. Buy at the Pearson website
   Precalculus by Blitzer, 5th edition (cloth bound) plus new MyMathLab with Pearson eText, access card package ($123.20)

MyMathLab

MyMathLab is a valuable tool for study and review, and it is recommended. There will be an extra credit of 10% for homework if it is completed online by using MyMathLab.

If you purchased access to MyMathLab, the course ID is **krantsberg31981**
(You can find MyStatLab Quick Start Guide for Students at
http://help.pearsoncmg.com/xl/get_started/student/mmnd/mml/get_started_stu_mmnd_mml.pdf)

Alternative Textbook

A free online Precalculus textbook by Jay Abramson et. al
https://openstax.org/details/books/precalculus
I highly recommend to use this textbook in conjunction with **WebAssign.**

WebAssign

WebAssign is a valuable tool for study and review. There will be an extra credit of 10% for each homework assignment if you do it by using WebAssign.
If you want to purchase access to WebAssign, you need the Class Key: (I will provide it.)
The price of WebAssign instant Access for OpenStax Calculus for one semester is $37.95

Calculator

This course requires a graphing device TI-83 or better. If you plan to take calculus courses, TI-89 would be the best option.

Grading Policy
Grading Categories

- Homework - 10%
- Quizzes -   15%
- Exams   -   45 %
- Final Exam - 30 %

Course Grade

The course grade will be a letter grade:
      A - 90%-100%

   B - 80%-89.9%
   C - 70%-79.9%
   D - 60%-69.9%
   F - below 60%

No audits are given in this class. **The last day to withdraw with refund is September 7, 2017**. **The last day to withdraw without grade penalty is October 31, 2017**. You are responsible for doing all paperwork <u>before</u> these last dates.

Attendance:
It is very important to attend this class. If you miss no more than two classes, your lowest grade on homework, quizzes, or exams will be dropped. My experience shows that regular attendance and active class participation, in most cases, results in a passing grade.

Grading Assignments

Homework:
If you do your homework online using MyMathLab, all homework assignments are already there. Up to 10% increase of your grade for homework is given for doing homework online.
If you do your homework on paper follow the assignments in the syllabus or in the lesson plans.
<u>Note</u>: *If your average grade on the tests is more than 70%, you will get a 5% extra credit for your homework.*
Quizzes: We will have quizzes on most class days when there is no test. You can make up two quizzes.

Tests:
There will be four tests, one hour each.
The tentative schedule for the tests is this.

   Test 1   September 13
   Test 2   October 20
   Test 3   November 10
   Test 4   December 1

Please let me know in advance if you are not able to attend the class on any of these days. You may make up a test within two weeks after the test. It is your responsibility to schedule the make-up test with me.

Final Exam
The final exam is scheduled for **<u>Thursday, December 14, 2017 from 7:30PM to 10:00PM</u>**. The exam will be comprehensive and cover all course material.
All Students are expected to attend the final exam. There is no make-up for the final.

Exam and Test Policy
You may not share calculators during exams or quizzes. You may not use cell phones as calculators during exams and quizzes.
Cheating – receiving or giving unauthorized help- will result in a score of 0 on that exam.

Course Policies
   - **Classroom Behavior**

You should silence cellular phones. No texting during class time is allowed.

- **Late Assignment Policy**
  Penalty of 20 % is imposed for every two weeks after the assignment due date.
- **Exams and Make-Up Exams**
  You may make up a test within two weeks after the test. It is your responsibility to schedule the make-up test with me.
- **Cellphones, Smartphones, Laptops and Other Electronic Devices**
  You should silence all electronic devices. No texting during class time. You are not allowed to use any electronic device, except a graphing calculator during in-class assessments.
- **Student Professionalism**
  All students are considered adults and will conduct themselves in a professional manner at all times. Please read the section titled Student Conduct, Rights, and Responsibilities: B. Student Conduct in the Student Handbook.

Student Support Resources

- **IT Helpdesk The IT**
  Help Desk provides first-level technical support to all faculty, staff and students of Northern Virginia Community College. Additional details and resources are located at http://www.nvcc.edu/ithd/.
  HOURS OF OPERATION

	The Help Desk offers assistance 24 hours a day, 7 days a week. Service is available nights, weekends and holidays.
Phone:	703.426.4141
Alexandria IT	703.845.6226
Email:	ithelpdesk@nvcc.edu

- **Disability Services for Students:**
  The College is committed to the goal of providing each qualified student an equal opportunity to pursue a college education regardless of disability. Efforts will be made toward meeting reasonable requests for services to students with disabilities eligible under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA).
  Please read the section titled Disability Services for Students in the Student Handbook.

  Students requiring special needs in accordance with the American's With Disabilities Act must provide to the professor the NOVA Accommodation Form. Every effort will be made to meet student's special needs when the student makes those needs known appropriately. It is the student's responsibility, not a counselor's, to present the NOVA Accommodation Form to the professor. Accommodations will begin as soon as the form is received and are not retroactive. Please visit the Disability Support Service (DSS), Disability Documentation Guidelines, and Disability Services Intake Packet NOVA website pages for additional details and list of Disability Counselors by Campus.
  Northern Virginia Community College, Disability Services http://www.nvcc.edu/current-students/disabilityservices/
- **Tutoring**
  Tutoring is available in my office during my office hours or by appointment.

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- **Emergencies**

  Anyone observing an emergency situation should contact the Campus Police Office or the dean of students.

  Alexandria Police Office
  Bisdorf Building, Room 240 Phone: 703.764.5000 Email: PoliceDispatch@nvcc.edu
  Hours: 24 hours a day, 7 days a week
  Dean of Students
  Bisdorf Building, Room 195 Phone: 703.845.6219 Email: vdiaz@nvcc.edu

- **Classroom Emergency Response Procedures**

  All classrooms have an evacuation plan and directions (showing the route to the nearest building exit) posted next to the light switch by the doorway of each room. When the fire alarm sounds, immediately leave the classroom or lab with all of your belongings in accordance with the Evacuation Plan. Do not take the elevator. Do not activate cell phones or radios and please help assist the disabled.

- **Inclement Weather Policy**

  If the college is closed, a text alert will be sent to cell phones registered on NOVA Alert and a notice will be posted on the College's website www.nvcc.edu/emergency . You may find out whether the college is closed by checking the web site, the TV or radio news, or by signing up for text message announcements. Please visit http://www.nvcc for detailed information. Individuals may also call the College Call Center at 703–323–3000 or NOVAConnect Phone at 703–323–3770. Do not call individual offices.
  If weather conditions cause the College to close, all NOVA campuses and off-campus locations are closed.
  In all cases of delayed openings, classes that would have started prior to an opening time and continued at least 45 minutes after the opening time will go on at the opening time. For example, in the case of a two-hour delay, a two-hour class that normally begins at 9:00 a.m. and continues to 11:00 a.m. would start at 10 a.m. and continue as usual until 12:00 p.m.

- **Emergency Procedures for Class Continuance**

  In the event of a College-wide emergency, course requirements, classes, deadlines, and grading schemes are subject to changes that may include alternate delivery methods, alternate methods of interaction with the instructor, class materials, and/or classmates, a revised attendance policy, and a revised semester calendar and/or grading scheme. In case of a College-wide emergency, please refer to the following about changes in this course:
  Website: Blackboard (through learn.vccs.edu or MyNOVA) For general information about an emergency situation, please refer to: http://www.nvcc.edu or 703-450-2540 Nova Emergency Alert Registration: https://alert.nvcc.edu In event of an emergency just regarding this class, check Blackboard for announcements regarding course progress/assignments.

  You should silence cellular phones. No texting during class time.

Note: <u>The syllabus is subject to change.</u>
Course Outline
(Subject to change at any time)

Week	Date	Section	Assignment (due the following week)
1	08/23	4.1 Angles and Radian Measure	pp.505-507:1,5,7,13,19,21,25,31,35,37,41,43,47,49,57,59,63,65,67,71,73,75
		4.2 The Unit Circle	pp.519-522:1,5,9,11,13,17,19,21,25,27,31,35,39,47,49,51,53,55,59,73,75,77,79

		4.3 Right Triangles Trigonometry	pp.533-536:1,7,9,13,15,17,19,21,23,27,29,35,39,41,45,49,51,55,59,61,65,69,75,79,83
2	08/30	4.4 Trigonometric Functions of Any Angle	pp.548-549:1,3,5,9,13,15,19,23,25,27,29,33,35,45
		4.5 Graphs of Sine and Cosine Functions	pp.568-571:1,5,7,9,17,21,23,31,33,37,41,43,47,53,55,61,65,87
3	09/06	4.6 Graphs of Other Trigonometric Functions	pp.580-584:1,3,5,7,11,13,15,19,21,25,27,29,31,33,35,37
4	09/13	**TEST 1** 4.7 Inverse Trigonometric Functions	pp.598-599:1,5,9,13,17,19,21,27,31,35,39,41,45,47,51,55,63,67,73,93,97
5	09/20	4.8 Applications of Trigonometric Functions	pp.609-612:1,5,7,13,15,17,19,21,25,29,33,41,45,47,49,51,53
6	09/27	5.1Verifying Trigonometric Identities	pp.630-633:1,5,9,11,13,15,21,25,29,33,37,43,45,51,61,63
		5.2 Sum and Difference Formulas	pp.640-643:1,59,11,13,15,25,27,29,33,37,41,49,51,57,65
		5.3 Double-Angle, Half-Angle Formulas	pp.651-654:1,3,5,7,15,17,21,23,27,37,41,47,49,55,59,69
7	**10/04**	5.4 Product-to-Sum and Sum-to-Product Formulas	pp.660-663:1,3,5,7,9,11,13,15,21,23,27,31
		5.5 Trigonometric Equations	pp.674-675:1,9,11,13,16,21,25,31,39,47,53,59,63,69,77,86,91,99,105
8	**10/11**	**TEST 2** 6.1 The Law of Sines	pp.690-693:1,5,9,13,17,23,25,33,37,47,51
9	10/18	6.2 The Law of Cosines	pp.699-701:1,3,5,7,9,17,19,25,31,37,39,45,47
		6.3 Polar Coordinates	pp.711-713:1,3,5,7,9,11,15,17,19,21,27,29,41,45,47,49,51,55,59,61,65,69
10	10/25	**TEST 3** *6.4 Graphs of Polar Equations	pp.722-724:1,3,5,7,9,11,13,15,19,21,25,27,29,45,47,49
		6.5 Complex Numbers in Polar Form	pp.736-738:1,9,11,13,27,31,37,39,43,37,53,57,61,63,65,67,71,73,91
11	**11/01**	1.9 Circles	pp.264-266:1,9,19,23,31,35,41,45,51,53,59,65,67
		9.1 The Ellipse	pp.930-932:1,3,13,19,21,25,37,41,51,61,65,67
12	11/08	9.2 The Hyperbola	pp.945-947:1,3,5,7,13,23,27,29,31,33,37,47,49,61
		9.3 The Parabola	pp.958-960:1,3,5,11,17,21,31,33,35,39,43,61,63
13	11/15	10.1 Sequences	pp.1010-1011:1,11,13,17,19,23,27,31,33,37,43,49,57,61,69
		10.2 Arithmetic Sequences	pp.1020-1021:1,9,15,19,23,37,31,35,39,45,61,63,65,69
		10.3 Geometric Sequences and Series	pp.1035-1037:3,5,9,11,17,21,25,27,33,37,41,45,47,51,53,55,67,69,73,79,85
14	**11/22**	**No Classes**	
15	11/29	**TEST 4**	
16	**12/06**	Review	
17	**12/13**	**Final Exam**	**19:30PM – 10:00PM**