



Dallas High School Home of the Dragons



Discrete Mathematics

2013-2014

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Office Hours: Tues-Friday 3:00-3:30, additional times by arrangement.

Course Description: This advanced mathematics course is designed for students who will continue with math and/or science in college or need a credit requirement. The survey of mathematics includes set theory, number representations, advanced statistics and probability, matrices and a brief introduction to calculus.

Texts: Elements of Calculus and Analytic Geometry by Addison-Wesley and supplement materials

Course Outline

| | Unit Topic | Summative Assessment (Standards to Be Assessed) |
|-------------------|--------------------------|--|
| Semester 1 | | |
| Unit 1 | Critical Thinking | Unit Test (2) |
| Unit 2 | Set Theory | |
| Unit 3 | Logic | |
| Unit 4 | Number Representations | Unit Test (1,2) |
| Unit 5 | Number Theory | |
| Unit 6 | Financial Management | |
| Unit 7 | Graph Theory | |
| Semester 2 | | |
| Unit 8 | Cryptography | |
| Unit 9 | Modular Arithmetic | |
| Unit 10 | Matrices | Unit Test (5,6,7,8) |
| Unit 11 | Conic Sections | Unit Test (3,4,9) |
| Unit 12 | Statistics | Unit Tests (10,11,12,13,14) |
| Unit 13 | Introduction to Calculus | |

Standards to Be Assessed:

Number and Quantity

Use fractions, decimals, and irrational to solve problems.

1. Use properties of exponents to simplify expressions with fractional and radical exponents.
2. Reason quantitatively and use units and descriptive models to solve problems.

Use complex numbers to solve problems.

3. Use complex numbers to simplify expressions and solve equations. Be sure to incorporate the conjugate when necessary.
4. Represent numbers on the complex plane in rectangular and polar form.

Use matrices to solve problems.

5. Use matrices to represent data.
6. Perform operations with matrices and scalars when possible.
7. Find the inverse of a 2x2 matrix by finding the determinant.
8. Use matrices to solve systems of linear equations.

Geometry

Simplify and solve equations using conic sections.

9. Derive the equation of a circle, parabola, ellipse and hyperbola.

Statistics

Use statistics to make inferences.

10. Use the appropriate graph to represent the data.
11. Determine the shape of the graph for the given data values and interpret the information.
12. Estimate the population percentages.
13. Compare, contrast and compute two categorical and quantitative variables.
14. Relate the statistic from a sample to the population.

Career Related Learning Standards: Career-related learning standards (CRLS) are fundamental skills essential for success in employment, college, family, and community life. We have integrated the Personal Management standard from the CRLS into all courses at DHS. **This standard will be assessed and communicated independent of the academic grade.** It is included below and mainly includes behaviors that will be assessed in this course.

- **Personal Management Standard:** Exhibit appropriate work ethic and behaviors in school, community and workplace.
 - Students will identify tasks that need to be done and initiate action to complete the tasks.
 - Students will plan, organize and complete projects and assigned tasks on time, meeting agreed upon standards of quality.
 - Students will take responsibility for decisions and actions and anticipate consequences of decisions and actions.
 - Students will maintain regular attendance and be on time daily.
 - Students will maintain appropriate interactions with colleagues.

Grading and Assessment:

Student's final grade for each course will be broken down into two categories:

- 1) **Academic:** based on assessments, tests, projects and performances that measure learning.
- 2) **Personal Management:** based on homework completion and other behaviors measuring the CRLS personal management standard.

The Final grade is calculated as follows: 75% of the course grade will be based on the **Academic** grade and **25%** on the **Personal Management** grade.

- Any items included in the Academic grade (PA) may be retaken and the higher grade recorded. Teachers may extend the retake time period, but as a rule all retakes need to be done within 2 weeks of the initial assessment.
- Students will complete extra preparation before retaking an assessment.
- Personal management work turned in late may be reduced by up to 50% credit.
- Retakes are not allowed on Personal Management assignments.
- Students must schedule performance retakes at their teacher's convenience. (Speech, drama, labs.)

Academic Integrity: (Student Handbook)

The faculty and administration of Dallas High School believe that honesty and integrity are personal attributes worth nurturing in our students. Because we value the educational and skill development opportunities provided by classroom assignments, research projects, tests, and credit recovery, we expect students to express academic integrity by doing their own work and properly documenting information gathered from other sources. Congruous with this belief is our resolve to handle those who violate the principles of academic integrity with stringent consequences (see insubordination).

First Offense:

- Contact with the parent
- In-school suspension or suspension for up to three days

Second and Subsequent Offenses:

- Contact with parent; conference with parent & student
- In-school suspension and/or suspension for a maximum of ten school days.

Parents: Please keep the rest of the syllabus. By signing this form, you acknowledge that you have read and fully understood the expectations, rules, and standards associated with (Fill in the name of your course here) . If you have questions, please call 503-623-8336 or email using the email address provided in this document.

Parent Name:

Parent Signature:

Parent email Address:

Parent Phone:

Student Name:

Student Signature: