

Geographic Information Systems

St Paul Preparatory School

Teacher: Kyle Tredinnick

Room: 124

Meeting Time: B Days 4th Hour

Office Hours: 3rd Hour

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I. Description:

This one semester class explores the uses and applications of Geographic Information System (GIS) software. With the internet there is more information available than ever before, GIS gives users the possibility to display this data in new informative ways. Students will use GIS mapping software to collect, display, analyze, and share data as informational electronic maps. This project based course is part of the St. Paul Preparatory School STEM program and also counts as a social studies elective course.

II. Textbook:

None Required – Below are suggestions

- *A to Z GIS: An Illustrated Dictionary of Geographic Information Systems 2nd Edition*, by Tasha Wade and Shelly Sommer

III. Content Essential Outcomes:

- Use geographic representations and geospatial technologies to acquire, process, and report information within a spatial context.
- Gain proficiency in the use and applications of geospatial technologies like Global Positioning Systems and Geographic Information Systems.
- Recognize and analyze different spatial relationships and distributions of different population, culture, urban, agriculture, political, and development characteristics around the United States and the World.
- Analyze maps for information, accuracy, and usefulness
- Be able to identify geographic problems and propose possible solutions using geographic data and geospatial technologies
- Understand the basic concepts, theories, and practices of Cartography

IV. Literacy Essential Outcomes:

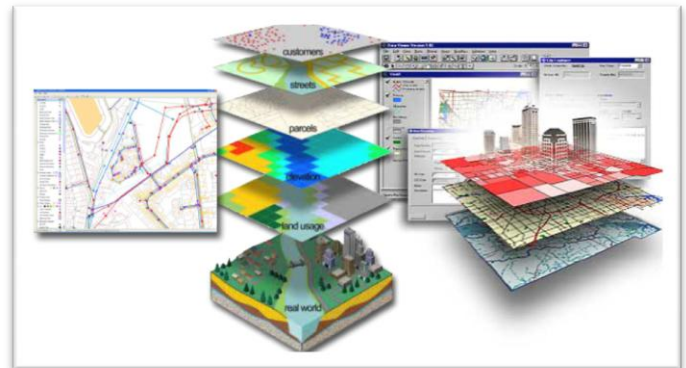
- Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.
- Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of geography.
- Identify reputable sources.
- Identify the elements of a reputable source and appraise example sources.
- Write an argument using an assertion, reasoning, and evidence format in paragraph form, using provided materials as support.

V. Language Requirements:

- Students will be required articulate their ideas about geographical ideas in written and verbal form throughout the course of the year
- Students will evaluate geographical problems and provide their opinions in class discussions and in debates.
- Students will expand their understanding of the concepts of Physical and Human Geography through readings and class notes given by the instructor throughout the course of the year.
- Students will practice their listening skills by listening to lectures, the ideas of others students, guest speakers, and different types of media.

VI. Resources:

- World Factbook, Central Intelligence Agency
- United States Census Bureau
- National Geographic
- World Mapper
- Esri ArcGIS
- Google Earth
- Map Hill



VII. Examinations/Assessments:

- Students will have quizzes randomly throughout the course of the semester
- Students will have a test at the end of Unit I and II
- This class is primarily project based, requiring the completion of in class assignments and additional projects
- Students will have a Semester final project.
 - Project will require students to use knowledge from entire semester to complete.
- Students will have a variety of homework assignments throughout the course of the semester including, but not limited to, writing assignments, projects, worksheets, and readings.

VIII. Grading Scale:

A				B			C			D		F
+	-	+	-	+	-	+	-	+	-			
97-	94-	90-	87-	84-	80-	77-	74-	70-	67-	64-	60-	Below 60
100	96	93	89	86	83	79	76	73	69	66	63	Percent

IX. Evaluation:

- Class Participation - 20 percent
 - 10 points every 6 weeks for a total of 30 points
 - Subtractions based off teacher's discretion for being off task, disengaged, or disruptive
- Classwork/Homework – 40 percent
 - Most assignments 5 points, larger assignments values based on size and time
- Tests and Quizzes – 30 percent
 - Conceptual tests at the end of Units I & II
- Final Project – 10 percent

- X. Units:
1. Basics of Cartography (3 weeks)
 2. Principles of GIS (2 weeks)
 3. Using ArcGIS (5 weeks)
 4. Performing Analysis (2 weeks)
 5. Applying GIS Principles (4 weeks)
 6. Final Project (3 Weeks)

XI. Course Schedule:

Unit I – Basics of Cartography

- Week 1 – Course Introduction
 - Week 2 – The Craft of the Geographer
 - Week 3 – Projections and Thematic Maps
 - Unit I Test – Thursday February 11th, 2016
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Unit II – Principles of GIS

- Week 4 – Beginning GIS
 - Week 5 – GIS Essentials
 - Concepts of GIS Test – Friday February 26th, 2016
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Unit III – Using ArcGIS

- Week 6 – Introduction to ArcGIS
 - Week 7 – Making Dot and Heat Maps
 - Week 8 – Choropleth Maps
 - Week 9 – Creating Web Apps
 - Week 10 – Creating Web Apps
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Spring Break – April 2-10

Unit IV – Performing Analysis

- Week 11 – Analyzing Data
 - Week 12 – Analyzing Data
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Unit V – Applying GIS Principles

- Week 13 – Project Based Learning
 - Week 14 – Project Based Learning
 - Week 15 – Project Based Learning
 - Week 16 – Project Based Learning
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Unit VI – Final Project

- Week 17 – Final Project Work Time
- Week 18 – Final Project Work Time/Presentations
- Week 19 - Presentation

*This schedule is a tentative outline of the first semester and subject to change depending on student progress. Additional readings will be given out as needed.