COURSE SYLLABUS
MATH 3380, Section 01
HISTORICAL PERSPECTIVE OF MATHEMATICS
CREDIT HOURS: 3
Fall 2017

CLASSROOM AND SCHEDULE: Lee Drain Building, Room 424
Monday, Wednesday, & Friday, 10:00-10:50 a.m.

INSTRUCTOR INFORMATION:
Dr. Dustin L. Jones
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Email: DLJones@shsu.edu
Office hours: Mondays, Wednesdays, & Fridays 9:30 – 10 a.m. Tuesdays & Thursdays, 9 – 10 a.m.
Other times available by appointment

CATALOG DESCRIPTION: This course is designed to present mathematical topics from a historical perspective. The number systems and computational methods of past cultures and civilizations are discussed, along with the development of number theory and trigonometry. Credit in this course is applicable only toward elementary/middle school teacher certification. Prerequisite: C or better in MATH 2384.

COURSE OBJECTIVES: Upon completion of this course, students will be able to:
- Describe the major mathematical contributions of individuals and societies related to numeration, computation, number theory, and trigonometry.
- Represent numbers (including whole numbers and fractions) in various numeration systems, including Babylonian, Egyptian, Roman, Greek, Chinese, and Mayan.
- Understand and use computational methods of other cultures.
- Classify numbers according to specific definitions (e.g., abundant, amicable, prime, triangular) and use these definitions to make, test, and prove conjectures.
- Understand, use, and create number-theoretic functions.
- Describe how the history of mathematics relates to U.S. middle-grades classrooms.

REQUIRED TEXTBOOK: *Number Stories of Long Ago* by David Eugene Smith. The book was originally written in 1919, and it is available for free online through Google Books. A link will be posted on Blackboard.
Many other course materials, such as readings, handouts, and assignments, will also be available through Blackboard.

COURSE FORMAT
- This class will be a hybrid of face-to-face (traditional) and online formats.
- In general, students will complete class readings and watch videos on new content before class.
- We will meet in LDB 424 each Monday and Wednesday (and on some Fridays) to work on problem sets related to the readings and videos.
- On some Fridays, we will meet with MATH 4367 in LDB 403 for presentations. See the Tentative Schedule for specific dates.
- Reading Quizzes will be submitted electronically on Fridays. See the Tentative Schedule for specific dates.
- All course material will be posted on Blackboard for students to complete between class meetings. **Please check Blackboard regularly.**

COURSE OUTLINE:
- Unit 1: History of Numbers, Numerals, and Computation
- Unit 2: Number Theory
- Unit 3: Trigonometry

ATTENDANCE POLICY: Attendance is *extremely* important. Regular and punctual attendance is expected. Course grades may be lowered up to one-half letter grade for each absence in excess of two class periods. **If you are absent on the day an in-class assignment is given and collected, you will earn a 0 for that assignment.** Serious health or family problems that are well documented will be handled individually.

READING ASSIGNMENTS, VIDEO LECTURES, AND PROBLEM SETS:
New material will be communicated primarily through reading assignments and video lectures. In order to succeed in this course, it is imperative that students complete the assigned reading and video lectures prior to class meetings. We will use class time to complete problem sets. Students are encouraged to attempt problems prior to the class meeting. This will ensure that class time is used most effectively.
For each class period, there will be an opportunity to earn up to 2 points for demonstrating that they have completed the preparatory assignment. This will be done by submitting a question about an article or video at the beginning of class, showing evidence attempting some problems in the problem set at the beginning of class, or (on days where presentations have been scheduled), appropriately attending to and participating in presentations. A maximum of 40 points may be earned.

QUIZZES, TESTS, PRESENTATION, AND FINAL EXAM: Throughout the course of the semester, students will have a number of ways to demonstrate proficiency in learning the material. For all categories, **NO LATE WORK WILL BE ACCEPTED**. If a student knows that he or she will be absent, he or she may turn in your assignment early, drop it by the instructor's office, or send it by email by class time of the due date.

Quizzes: There will be nine quizzes over the course of the semester. One will be administered in class, and the rest will be online. The Greek alphabet is the subject of the in-class quiz. The online quizzes are related to the chapters of our textbook. Questions for the online quizzes will be selected from the "Question Box" at the end of each chapter. Your top eight quiz scores will count towards your course grade.

Tests: There will be a total of six tests. These will be administered during class time.

Presentation: Students will work in groups of 2 or 3 to prepare and present a topic to the rest of the class. Details are provided on the last page of this syllabus. The project grade includes preparation and presentation components.

Final Exam: The final exam is comprehensive.

COURSE EVALUATION:

Category	Points Possible
Readings, Videos, and Problem Sets	40
Quizzes (top 8 scores, 10 points each)	80
Tests (4 tests, point totals vary)	180
Presentation	30
Final Exam (comprehensive)	70
Total	**400**

Grading Scale

Points earned	360-400	320-359	280-319	240-279	less than 240
Course grade	A	B	C	D	F

ACADEMIC DISHONESTY: All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

CLASSROOM RULES OF CONDUCT: Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off and stored out of sight before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers and magazines, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

TELEPHONES AND MESSAGING DEVICES: The use by students of electronic devices that perform the function of a telephone or text messager during class-time is **prohibited**. Arrangements for handling potential emergency situations may be granted at the discretion of the instructor. *Failure to comply with this policy could result in expulsion from the classroom or with multiple offenses, failure of the course.* Any use of a telephone or text messager or any device that performs these functions during a test period is prohibited. These devices should not be present during a test or should be stored securely in such a way that they cannot be seen or used by the student. Even the visible presence of such a device during the test period will result in a zero for that test. Use of these devices during a test is considered de facto evidence of cheating and could result in a charge of academic dishonesty.

STUDENTS WITH DISABILITIES POLICY: It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.
SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see http://www.shsu.edu/dept/academic-affairs/aps/aps-students.html

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS: University policy states that a student who is absent from class for the observance of a religious holy day must be allowed to take the examination or complete an assignment scheduled for that day within a reasonable time after the absence. Students will be excused to travel for observance of a religious holy day. A student who wishes to be excused for a religious holy day must present the instructor with a written statement describing the holy day(s) and the travel involved. The instructor will then provide the student with a written description of the deadline for the completion of missed exams or assignments.

VISITORS IN THE CLASSROOM: Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom. This policy is not intended to discourage the occasional visiting of classes by responsible persons. Obviously, however, the visiting of a particular class should be occasional and not regular, and it should in no way constitute interference with registered members of the class or the educational process.

COPYRIGHT POLICY: All printed materials disseminated in class or on the web are protected by Copyright laws. One photocopy (or download from the web) is allowed for personal use. Multiple copies or sale of any of these materials is strictly prohibited.

SYLLABUS REVISIONS: All information on this syllabus is subject to change. Any changes will be announced in class and posted on Blackboard.

TENTATIVE SCHEDULE

Mondays		*Wednesdays*		*Fridays*	
		Aug. 23	Numeration Systems	Aug. 25	Select Presentation Topic Numeration Systems 1.1
Aug. 28	**NO CLASS MEETING** (Harvey)	Aug. 30	**NO CLASS MEETING** (Harvey)	Sep. 1	**NO CLASS MEETING** (Harvey)
Sep. 4	**NO CLASS MEETING** (Labor Day)	Sep. 6	**RQ I & II online** Numeration Systems 1.2	Sep. 8	**RQ III & IV online** Presentations (LDB 403) Math 4367
Sep. 11	**Greek Alphabet Quiz** Numeration Systems 1.3 & 1.4	Sep. 13	Numeration Systems 1.5	Sep. 15	**RQ VIII online** Presentations (LDB 403) *History of 1 and 0* *Greek Fractions* *Decimal Fractions*
Sep. 18	**Numeration Systems Test**	Sep. 20	Fractions 1.6	Sep. 22	Fractions 1.7
Sep. 25	Fractions 1.8	Sep. 27	Calculation Methods 1.9	Sep. 29	**RQ V, VI, & VII online** Presentations (LDB 403) Math 4367
Oct. 2	Calculation Methods 1.10	Oct. 4	Calculation Methods 1.11	Oct. 6	Presentations (LDB 403) *Abacus & Soroban* *Napier's Rods* *Logarithms*
Oct. 9	**Fractions & Calculation Methods Test**	Oct. 11	Figurate Numbers 2.1	Oct. 13	Figurate Numbers 2.1
Oct. 16	Figurate Numbers 2.1	Oct. 18	Number Theory 2.2	Oct. 20	Presentations (LDB 403) Math 4367
Oct. 23	Number Theory 2.3	Oct. 25	Number Theory 2.4	Oct. 27	Presentations (LDB 403) *Goldbach's Conjecture* *Twin Prime Conjecture* *Friendly Numbers*
Oct. 30	Number Theory 3.5	Nov. 1	Number Theory 2.6	Nov. 3	Number Theory 2.7
Nov. 6	Number Theory 2.8	Nov. 8	**Number Theory Test**	Nov. 10	Presentations (LDB 403) Math 4367
Nov. 13	Trigonometry 3.1	Nov. 15	Trigonometry 3.2 & 3.3	Nov. 17	Presentations (LDB 403) *Angle Notation* *Earth's Circumference* *The Almagest*
Nov. 20	Trigonometry 3.4 & 3.5	Nov. 22	**NO CLASS MEETING** (Thanksgiving)	Nov. 24	**NO CLASS MEETING** (Thanksgiving)
Nov. 27	Trigonometry 3.6	Nov. 29	**Trigonometry Test**	Dec. 1	The Great π/e Debate (LDB 403)
Dec. 4	**FINAL EXAM** **10:30 A.M. – 12:30 P.M.**				

PRESENTATIONS

Students will work in groups of 2 or 3 to prepare and present a topic to the rest of the class, and to students in MATH 4367.

Each presentation should last 8-10 minutes, and include an introduction to the topic, appropriate historical connections, and at least one mathematics problem for the audience to consider. After each presentation, presenters will take questions from the audience

The tentative schedule for presentations is listed below.

Topic	Presentation Date
1. History of 1 and 0	Friday, September 15
2. Greek Fractions	Friday, September 15
3. Decimal Fractions	Friday, September 15
4. Using the Abacus and Soroban	Friday, October 6
5. Using Napier's Rods	Friday, October 6
6. Using Logarithms to Multiply & Divide	Friday, October 6
7. Goldbach's Conjecture	Friday, October 27
8. The Twin Prime Conjecture	Friday, October 27
9. Friendly Numbers	Friday, October 27
10. Angle Notation through History	Friday, November 17
11. Eratosthenes and the Earth's Circumference	Friday, November 17
12. Ptolemy and the Almagest	Friday, November 17

My topic: _____ My team: _____

Timeline

Select topic and form teams	Date: Friday, August 25
As a team, meet with Dr. Jones to discuss topic	Date: _____ (two weeks prior to presentation)
Present a near-final version to Dr. Jones	Date: _____ (one week prior to presentation)
Present topic to classmates (dress professionally)	Date: _____

Scoring Rubric

Select topic and team	2 points
Initial meeting with Dr. Jones	4 points
Near-final presentation to Dr. Jones	4 points
Presentation criteria	
Duration (8-10 minutes)	2 points
Historical connections	6 points
Accurate mathematics	4 points
Mathematics problem for audience	2 points
Professional dress for presentation	2 points
Instructor's evaluation of effort	2 points
Teammate's evaluation of effort	2 points
Total	**30 points**