

Spring 2021
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~ Just email me for an individual appt.

"BRIEF" SYLLABUS – for Quick Reference Only!

HIST 3327: History of Science Perspectives on Science ~ Hidden Figures' Lives Matter

***** Tue. January 19: Check your utdallas email for the LINK to our online course materials, the full COURSE GUIDEBOOK and "EXPLAINER" + WEEKLY CHECKLISTS of all our online assignments and activities! The "brief syllabus" posted on CourseBook and eLearning is a basic overview of class info and only lists an outline of our course calendar!**

VERY IMPORTANT: After you follow the LINK, read the Welcome Announcement and follow the instructions immediately! Change your SETTINGS for "notifications" to the lowest desirable level. It will save you from accumulating a very messy inbox and can only be done from the "student side"!

Instructional Mode: 100% online and 100% asynchronous

- No physical attendance or full-class online "meetings" required.
- Project pairs/partners and small groups will meet virtually with each other, at your own convenience, using your preferred (mutually agreed-upon) meet-up/group chat.
- Individual or group email and phone conferences with Prof. G available by appointment for personalized encouragement, guidance and support. <3

Course Platforms:

- Basic syllabus overview & outline of essential course info. posted to **CourseBook** and **eLearning**.
- **UTD email** will be used for direct student-professor communications and for submission of MIDTERM and FINAL exams and Formally Graded Projects.
- **LINK** / INVITE to our weekly **Classroom** materials site, online announcements and class announcements / discussion stream will be sent to your official UTD email **Tue. January 19**.

Class Style & Approach: "Oxford University Tutorial" MEETS "The Magic School Bus!"

We aim to combine the interpersonal vibe of Oxford's famous Prof-guided, independent study "tutoring" with Ms. Frizzle's "Take chances, make mistakes, get messy" and "Get out there and explore!" attitudes. As a famous poet once said, "All the world's a field trip, and all the kids in class are merely guinea pigs" . . . or did Ms. Frizzle (umm, Prof. G., say that)? Anyway, our class features:

- weekly/bi-weekly, self-paced reading and viewing, with personal responses/reflections
- weekly/bi-weekly "Guide by your Side" slide-talks with Prof. G + STUDY GUIDES to provide "way-finding" hints, important points of interest, ideas to connect and ponder
- "Guest" mini-lectures and videos from the greater universe of expert educators
- Lots of choices for "Natural Connections" and "Cultural Perspectives" experiences
- Individual and Pair-Partner cooperative projects + one Small Group or Solo project

Catalog Description:

HIST 3327 - Perspectives on Science (SciEd) (3 semester credit hours). An interdisciplinary analysis of the origins and development of western science and its construction of natural knowledge from the ancient world through the near present. This course is especially designed for those training to be elementary and secondary science and mathematics teachers including UTeach students; it may be available to others interested in the interdisciplinary relations of science and the humanities, such as pre-health majors (including those completing the Minor in Medicine, Arts, Science and Humanities). Prerequisite: Completion of a 060 core course – American History; and department consent required. (3-0) T * ***Counts toward the Minor in Medicine, Arts, Science and Humanities (MASH)*** *

No specific mathematical or scientific background is required – the History of Science aims to be accessible to every kind of curious mind that is ready to explore, investigate and discover!

Course Description:

In this interdisciplinary history course we will explore such questions as:

Where did science come from? How did human beings begin to make sense of nature, human nature and humanity's place in the natural world?

How have our human powers of observation, imagination, invention and discovery continued to shape our understanding of ourselves and the natural world in various times and places?

By exploring diverse source materials and texts, we will trace the origins and development of science as global and multicultural phenomena. We will map the construction of natural knowledge across geographical spaces and from prehistoric time to the near-present.

Along the way, we will gain experience with different pedagogical approaches – lecture, active reading, individual presentations, group work, inquiry-based and problem- and project-based learning (PBL), as well as a variety of best-practices for integrating interdisciplinary materials (literature, history, philosophy, art and popular culture, new media) into science/math content and instruction.

We will examine developments across many scientific domains including: natural history, astronomy and cosmology, medicine and life sciences, and experimental science – ALL of which incorporate various degrees of “mathematization” of natural knowledge in their methods of inquiry and their forms of recording and communicating results. Math is embedded *everywhere* in the History of Science!

Learning Objectives:

Students will read and discuss academic and popular-level written texts, write and design lesson plans and presentations using a wide variety of resource materials, including: primary scientific accounts, creative literary works, historical texts as well as scholarly interpretations and analyses.

Students will practice and demonstrate the ability to interpret, evaluate and analyze themes and issues using various critical methods, including literary, historical, philosophical, biographical and cultural approaches. Students will explore and engage a variety of professional teaching issues, current events and problems and pedagogical theories and practices to enhance their pre-professional preparedness.

REQUIRED BOOKS (FOR PURCHASE or RENT):

All of these titles are on order from UTD CAMPUS BOOKSTORE and are available on KINDLE.

Books 1, 2 and 3 will serve as our MAIN TEXTBOOKS. Required readings from them will help us build a strong foundation for understanding the most important “course content.”

* **NOTE:** Additional selected chapters and other readings will help us further develop a framework for organizing knowledge about the History of Science. These have been posted (for free!) under the “Classwork” tab on **Classroom**.

1. Principe, Lawrence. *The Scientific Revolution: A Very Short Introduction*, Oxford UP, 2011.

ISBN 13: 978-0199567416

Also on KINDLE

2. Cormack, Leslie B. and Ede, Andrew. *A History of Science in Society, Volume I: From the Ancient Greeks to the Scientific Revolution*, 3rd ed.. U. Toronto Press, 2016.

ISBN-13: 978-1442635036

Also available as E-Textbook /KINDLE

3. Watts, Ruth. *Women in Science: A Social and Cultural History*, Routledge, 2007.

ISBN-13: 978-0415253079

* Note: This one is WAY cheaper to RENT on KINDLE!

Books 4, 5 and 6 will be used for “pair/partner” work and small group activities and will also serve as key components and “INSPIRATION TEXTS” for projects and presentations.

* **NOTE:** You will SELECT specific chapters to work on from books 4 and 5 (you will not have to read all of their chapters for this course)! For instructions for how to use these texts for graded projects, see: “GUIDELINES / PROMPTS for GRADED PROJECTS” posted under the *Classwork* tab on **Classroom**.

4. Martinez, Alberto. *Science Secrets: The Truth about Darwin's Finches, Einstein's Wife, and Other Myths*. U. Pittsburgh Press, 2011.

ISBN 13: 978-0-8229-6230-4

Also on KINDLE

5. Popova, Maria. *Figuring*. Pantheon Books, 2019.

ISBN 13: 978-1524748135

Also on KINDLE

6. In addition, EVERYONE will select 1 more INSPIRATION TEXT to use for your Final Projects.

See the list of suggestions provided on the next two pages. These may be purchased from the cheapest place you can find them or checked-out from your nearest friendly university or public library – for free!

INSPIRATION TEXTS for FINAL PROJECTS – LIST OF OPTIONS

Please select ONE of the following “INSPIRATION TEXTS” for use in your FINAL LESSON PLAN / PRESENTATION Project.

NOTE: there are separate lists for **SCIENCE ED** and **MATH ED** students.

(But, if you really, really, really want to read a book on the “other” list, okay – just let me know ;-).

Highly Recommended: Look each book up on Amazon and “*Look Inside*” and read about it *before* you make your decision.

As soon as you know which book you’ll be using, notify Prof. G. by email *right away!* . . . but for sure, no later than: **Sat. March 13th by 10 pm.**

**Yes, I do want you to be thinking this far ahead, plus then you’ll have Spring Break to start reading it!*

SCIENCE ED – INSPIRATION TEXTS options:

Hargittai, Madgolna. *Women Scientists: Reflections, Challenges and Breaking Boundaries* (Oxford UP, 2015) ISBN-13: 978-0199359981 [Also on KINDLE]

Ideal, Emma. *Blazing the Trail: Essays by Leading Women in Science* (CreateSpace Independent Pub., 2013) ISBN-13: 978-1482709438 [Also on KINDLE]

Hossenfelder, Sabine. *Lost in Math: How Beauty Leads Physics Astray* (Basic Books, 2018) ISBN-13: 978-0465094257 [Also on KINDLE]

Jahren, Hope. *Lab Girl*. (Vintage; Reprint edition, 2017) ISBN-13: 978-1101873724 [Also on KINDLE]

de Waal, Frans. *Mama’s Last Hug: Animal Emotions & What They Tell Us about Ourselves* (Norton, 2019) ISBN-13: 978-0393635065 [Also on KINDLE]

Pollack, Eileen. *The Only Woman in the Room: Why Science is Still a Boy’s Club* (Beacon Press, 2016) ISBN-13: 978-0807083444

Finley Mosca, Julia. *The Girl Who Thought in Pictures: The Story of Dr. Temple Grandin* (Scholastic, 2018) ISBN-13: 978-1338298277

Noyce, Pendred. *Magnificent Minds: 16 Pioneering Women in Science and Medicine* (Tumblehome, 2016) ISBN-13: 978-1943431250

Jordan, Diann. *Sisters in Science: Conversations with Black Women Scientists on Race, Gender and Their Passion for Science* (Purdue UP, 2006). ISBN-13: 978-1557534453

MATH ED - INSPIRATION TEXTS options:

William, Talithia. *Power in Numbers: The Rebel Women of Mathematics* (Race Point Publishing, 2018) ISBN-13: 978-1631064852 [Also on KINDLE]

Shetterly, Margot Lee, *Hidden Figures: The Untold True Story of Four African-American Women who Helped Launch Our Nation Into Space* (HarperCollins, 2016). ISBN-13: 978-0062363602 [Also on KINDLE]

Ellenberg, Jordan. *How Not to be Wrong: The Power of Mathematical Thinking* (Penguin, 2015). ISBN-13 : 978-0143127536 [Also on KINDLE]

Strogatz, Steven. *Infinite Powers: How Calculus Reveals the Secrets of the Universe* (Houghton Mifflin, 2019) ISBN-13: 978-1328879981 [Also on KINDLE]

Cheng, Eugenie. *How to Bake Pi: An Edible Exploration of the Mathematics of Mathematics* (Basic, 2016). ISBN-13: 978-0465097678 [Also on KINDLE]

Padua, Sydney. *The Thrilling Adventures of Lovelace and Babbage: The (Mostly) True Story of the First Computer* (Penguin, 2016) ISBN-13: 978-0141981536

Bardow, Cheryl. *Nothing Stopped Sophie: The Story of Unshakable Mathematician Sophie Germain* (Little, Brown Books for Young Readers, 2018) ISBN-13: 978-0316278201 [Also on KINDLE]

McKellar, Danica. *Math Doesn't Suck: How to Survive Middle School Math Without Losing Your Mind or Breaking a Nail* (Plume; Reprint edition, 2008) ISBN-13: 978-0452289499

Urschel, John. *Mind and Matter: A Life in Math and Football* (Penguin Press, 2019) ISBN-13: 978-0735224865 [Also on KINDLE]

* If you choose to work "Solo" on your Final Project as an Individual (rather than as part of a group), you also have the additional option of consulting with Prof. G. directly on another INSPIRATION TEXT of your choice!

If there is something on your reading "wishlist" that you've always wanted to have the chance to dive into but haven't yet – now is your chance! Just contact me in advance, and we'll find a way to make it work!

COURSE REQUIREMENTS / FORMALLY GRADED ASSIGNMENTS

Overview: 5 elements total, each is worth 20% of your total course grade.
(Details for each of these elements is offered in the “EXPLAINERS” online).

Weekly “content” and “Objective” assessments →	1. Attendance and Participation 2. Midterm Exam, Final Exam (averaged together)
Personal Exploration Individual, Partner → and Group Research	3. “Un-hidden Figures” Project (Individual) 4. <i>Science Secrets</i> Project (Pair/partner) 5. Final Lesson Plan/Presentation Project (Small group <u>or</u> Solo)

*** SEE: our COURSE GUIDEBOOK and EXPLAINERS + WEEKLY CHECKLISTS
for full details of all requirements, exams and graded assignments**

UT-DALLAS HEALTH AND SAFETY GUIDELINES, STUDENT RESOURCES AND INSTITUTIONAL POLICIES:

(Most of these are required campus-wide “Remote/Online” learning notifications;
but **please note highlighted areas of special relevance to our class!**)

COVID-19 Guidelines and Resources

The information contained in the following link lists the University’s COVID-19 resources for students and instructors of record.

Please see <http://go.utdallas.edu/syllabus-policies>.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. **Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course.** Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Materials

The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the [Getting Started with eLearning](#) webpage.

Course Access and Navigation

Weekly materials for this course will be posted on **Google Classroom** NOT eLearning. Tutorials for how to use **Classroom** can easily be found all over YouTube . . . but you guessed that, of course!

However, for your convenience (and NASA-like redundancy), our basic class syllabus will also be posted on eLearning and CourseBook. To access eLearning (should you ever feel the need to), use your UT Dallas NetID account on the [eLearning](#) website.

Please see the course access and navigation section of the [Getting Started with eLearning](#) webpage for more information. To become familiar with the eLearning tool, please see the [Student eLearning Tutorials](#) webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The [eLearning Support Center](#) includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication

This course utilizes online tools for interaction and communication. We will NOT be using eLearning tools due to frequent reliability issues.

For private conversations, questions or comments, please email Prof. G. directly: psgossin@utdallas.edu

For general questions of relevance to the whole class, you may post to our **Google Classroom** "Announcements stream" and I will respond there, so everyone can see the info. at the same time. I pledge to check email and Announcement posts at least once per day, Monday-Friday and at least once over each weekend, even during Spring Break (so with luck, a personal response will never be more than "a day away").

Please let me know directly, in advance, of any situations that may keep you from submitting assignments on time. I'll try to help in any way that I can. We can make creative adjustments and adaptations as we go!

Distance Learning Student Resources

Online students have access to resources including the McDermott Library, Academic Advising, The Office of Student AccessAbility, and many others. Please see the [eLearning Current Students](#) webpage for more information.

Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online [eLearning Help Desk](#). The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Note: I can provide you with pdfs of most of our weekly learning materials as tech. outage back-ups; but our hope is that we will be avoiding most of these potential issues, by using **Google Classroom** instead!

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Yes, please! <3 And . . . let us all pledge to keep this a safe and comfortable online learning environment where we respectfully express and consider others' expression of ideas and opinions with equal kindness, regardless of political, philosophical, religious, intellectual, cultural, racial, generational, or other individual human differences.

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to [Academic Support Resources](#) webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to [UT Dallas Syllabus Policies](#) webpage for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor. True that.

CLASS CALENDAR

* **NOTE:** Weeks 1 and 15, all online class learning activities and assignments are DUE at the end of that week, Saturday by 10 pm. During weeks 2-14: You will have 2 full weeks to complete activities and assignments (for ex: for weeks 2-3, have everything done by Saturday of week 3; for weeks 4-5, by the Saturday of week 5 etc.).

CALENDAR for UNIT ONE

In the Beginning . . .

The Story of the History of Science: Prehistory to Medieval

* **REMINDER:**

Your **UNIT ONE Independent Learning Activities/Projects** may be turned in as soon as week 3 through the “no later than” date listed below. You choose the due date that works best for you!

* Un-hidden Figure Essay, with Slides and Book Review: **DUE no later than Sat. Feb. 27, 10 pm!**

* 1st Cultural Perspective/Natural Connections activity/write-up: **no later than Sat. Mar. 6, 10 pm!**

WK 1: T. January 19 – Sat. January 23: Welcome and Introduction to the Course

Wks 2-3: M. Jan. 25 – Sat. Feb. 6: Understanding Nature: “Prehistory” to Early “History”

Wks 4-5: M. Feb. 8 – Sat. Feb 20: Ancient Greek Science and beyond . . .

Wks 6-7: M. Feb. 22 – Sat. March 6: Medieval Worldviews (500ce - 1500ce +/-)

* SIGN-UP for your MIDTERM Day/Time by emailing Prof. G – **by 10 pm Sat. March 6**

WK 8: MIDTERM EXAM: Mon. March 8, Tue. March 9 OR Wed. March 10

These “3-hour windows” available each day: **930am-1230pm; 200-500pm; OR 630-930pm**

TAKE YOUR MIDTERM EXAM at your chosen Day/Time: _____

* SIGN-UP for your INSPIRATION TEXT by emailing Prof G, **no later than 10 pm, Sat. March 13**

SPRING BREAK < March 14 – March 21 >

**Over Break: READ your Science Secrets chapters and START READING your INSPIRATION TEXT!*

CALENDAR for UNIT TWO:

The History of Science continues . . . Revolutions to Evolution

*** REMINDER:**

Your UNIT TWO *Independent Learning Activity* may be turned in as soon as week 9 through the “no later than” date listed below. You choose the due date that works best for you!

* 2nd Cultural Perspective or Natural Connections activity and write-up (whichever type you did NOT already do for UNIT ONE!): **DUE no later than Sat. May 1, 10 pm!**

Wks 9-10: M. March 22 – Sat. April 3: Ideas of the Scientific Revolution (~1400-1687)

* “Meet” and collaborate with your *Science Secrets* partner and plan your essay/slidetalk

Wks 11-12: M. April 5 – Sat. April 17: The New--Really New--Astronomy! (~1543-1687)

* *Science Secrets* Pair-Partner Project **DUE: Sat. April 10, by 10 pm**

* *Science Secrets* Peer Review **DUE: Sat. April 17, by 10 pm**

* Begin designing your Final Project Lesson Plan and presentation, based on your INSPIRATION TEXT – with your assigned Group or Solo (individually)

Wks 13-14: M. April 19 – Sat. May 1: Newton and Newtonianism (b.1642–d.1727+)

* Lesson Plan and Presentation Projects **DUE: Sat. May 1 by 10 pm**

WK 15: M. May 3 – Sat. May 8: Ideas of Evolution . . .

* Peer Review Comments & Evaluation of Lesson Plans/Presentations, **DUE: Sat. May 8, by 10 pm**

* SIGN-UP for your FINAL EXAM Day/Time by emailing Prof. G – **by Sat. May 8, 10 pm**

WK 16: FINAL EXAM: Mon. May 10, Tue, May 11 OR Wed. May 12

These 3-hour “windows” available each day: **930am-1230pm; 200-500pm; OR 630-930pm**

*** FINAL DAY to TURN IN:**

-- History Visualization Time-lines OR Map projects/crafts;

-- Science / Math Concept COSTUME Posts;

-- All EXTRA CREDIT Vocabulary / Hidden Figures Lists, Study Guide/Notebooks (docx or scanned pdfs).

Everything is DUE no later than: **Wed. May 12 by 10pm**