Breaking Intuition: How Data has Changed Human Perception (Spring 2016, INTR 100)

Schedule
Gold Section (CRN 24926): M, W - 12PM to 12:50PM, *Morton Hall 244*
Green Section (CRN 24927): M, W - 1PM to 1:50PM, *Morton Hall 244*
Silver Section (CRN 24929): M, W - 2PM to 2:50PM, *Morton Hall 244*
All Sections : Friday, 12:00PM to 12:50PM, *Morton Hall 220*

Instructors

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Teaching Assistants
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Directions:
http://ssrmc.wm.edu/wp-content/uploads/2014/08/Finding-the-SSRMC.jpg
Office Hours: 1P-5P

Please let me know if you have any documented disabilities that may impact your performance in this class.

Course Description: The human species has nearly always sought to predict the future from reading the clouds and sacrificial rites, to statistics and big data parsing. At the core of this history lies human intuition, and the interplay between belief, story, and knowledge. In this class, students will learn the fundamental ways in which the human species has used data over time from arcane interpretation to artificial intelligence and closely inspect modern day assumptions about intuition and meaning. As a part of this course, students will learn how to parse and visualize large datasets to extract meaning, and use those findings to argue for or against solutions to real-world problems.

Prerequisite(s): None.

Credit Hours: 4

Books you'll need to buy:
Thinking, Fast and Slow, any edition
Daniel Kahneman

Automate This: How Algorithms Came to Rule Our World, any edition
Christopher Steiner

Media and Software available for free or on campus:

Many TED talks
Visme - Online Software
R and RStudio - Free Software for Download
ArcGIS
Microsoft Excel

Throughout the course I may assign readings from academic or popular journals these will be made available through either the Swem library or online via blackboard.

Course Objectives:

1. Challenge students traditional assumptions about the production of knowledge.
2. Provide a more critical understanding of scientific literature.
3. Develop your data communication, analysis, and visualization skills for future courses (and jobs).
4. Develop critical thinking skills necessary to become more responsible for your own learning and better engage with broadly defined challenges.
5. Provide an opportunity to fulfill the COLL 100 requirement (passing grade required).

Grade Distribution:

Lab Assignments	80%
Final Assignment	20%

Letter Grade Distribution:

>= 93.00	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 66.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	<= 59.99	F

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Time Commitment: Excelling in college level course work typically requires on average three to four hours per credit per week. Since this is a four credit course, in addition to the time we meet as a class each week, you should expect to spend nine to twelve hours on

average reading, writing, or otherwise preparing for this class on a weekly basis.

Attendance: This class does not have an attendance policy. However, it will be difficult to learn enough to pass the class without regular participation, as the majority of course content relevant to assignments will be covered in class. Unannounced opportunities for extra credit will periodically be given in-class.

Discussions: Some lecture sessions will begin with a brief discussion of the assigned materials. As such, each week students will be asked to come to class prepared with two to three bullet points for discussion - these can represent questions the material raised, commentary, or critiques. These discussion points may be collected for extra credit.

Classroom Behavior: Please remain civil during discussions to promote the open exchange of ideas and foster a culture of open dialogue. Please bear in mind that all students are entitled to their own opinion. You are expected to listen attentively to each person speaking. Please refrain from eating during class (and, if you must, make sure it isn't loud!).

Teacher-student conferences: Students performing at a C level or below are required to schedule a meeting with the instructor to discuss class performance.

Late / Poor Performance Policy: Assignments will not be accepted late, excepting in documented circumstances (i.e., an illness with a doctor's note). *Recognizing that it is entirely possible to under perform on key days, your lowest lab assignment grade will be dropped at the end of the semester. Your final assignment grade cannot be dropped.*

Final Project: The final project will be introduced the last few weeks, and will be due online by 11:59PM on the day of the scheduled final time (**Tuesday, May 10, 2016**). In this project, you will be assigned an open-ended question, and be asked to present a two to five page argument (including visualizations drawn from datasets) for why a certain course of action should - or should not - be taken.

Important Dates: The add and drop deadline this semester is Jan. 29, and withdrawal deadline is March 18.

Do not cheat!

Academic dishonesty is taken very seriously. Make sure to cite all of your work, and do not turn in work that is not yours! Cases of academic dishonesty will be evaluated and acted upon in accordance with William and Mary policies, which can be found at http://www.wm.edu/offices/deanofstudents/services/ student-conduct/

Course Outline:

The weekly content might change as it depends on the progress of the class. You must keep up with the reading assignments.

Week	Content
Week 1	• Wed, 1/20: An Introduction to R for Intelligent People • Fri, 1/22 - Lecture 1.0 - Preparing to be wrong *Watch: Ken Robinson - Do schools kill creativity?* • **Lab 1 Due!**

Week 2	• Mon, 1/25; Wed, 1/27: A Bit more Advanced Introduction to R for Intelligent People
	• Fri, 1/29: Lecture 2.0 - What is Intuition?
	   Reading: Thinking Fast and Slow, Chapter 1 - The characters of the story
	   Watch: Apollo Robbins: The art of misdirection
	• **Lab 2 due!**

Week 3	• Mon, 2/1; Wed, 2/3: Why William and Mary? • Fri, 2/5: Lecture 3.0 - Storytelling and Knowledge *Thinking Fast and Slow, Chapter 6 - Norms, Surprises and Causes*
Week 4	• Mon, 2/8; Wed, 2/10: Why William and Mary? • Fri, 2/12: Lecture 4.0 - The History of Modern Intuition • Reading: TBD • *Watch: Eric Sanderson: New York – before the City* • **Lab 3 due!**
Week 5	• Mon, 2/15; Wed, 2/17: GIS • Fri, 2/19: Lecture 5.0: The Meaning of Big Data *Automate This: How Algorithms Came to Rule Our World, Chapter 1: Wall Street, the First Domino* • Reading: TBD

Week 6	• Mon, 2/22; Wed, 2/24: GIS
	• Fri, 2/26: Lecture 6.0: Applications of Knowledge
	   The Hidden Influence of Social Networks - Nicholas Christakis
	   Reading: Connected, Chapter 1 - In the Thick of It
	• **Lab 4 due!**

Week 7	• Mon, 2/29; Wed, 3/2: Business Analytics • Fri, 3/4: Guest Lecture - Dr. Rob Rose, Center for Geospatial Analysis
Week 8	• Mon, 3/7: No Class (Spring Break) • Wed, 3/9: No Class (Spring Break) • Fri, 3/11: No Class (Spring Break)
Week 9	• Mon, 3/14; Wed 3/16: Business Analytics • Fri, 3/18: Guest Lecture - Salil Singhal, Bank Strategy, Capital One • **Lab 5 due!**
Week 10	• Mon, 3/21; Wed 3/23: Social Networks • Fri, 3/25: Lecture 7: Why we're generally wrong *Thinking, Fast and Slow - Chapter 18: Taming Intuitive Predictions Reading: Connected Chapter 2 - When you Smile, The World Smiles With You*
Week 11	• Mon, 3/28; Wed 3/30: Social Networks • Fri, 4/1: Guest Lecture: Jaime Settle - The Power of Social Networks • **Lab 6 due!**

Week 12	• Mon, 4/4; Wed 4/6: Development Geography • Fri, 4/8: "Guest" Lecture: Tyler Frazier, AidData
Week 13	• Mon, 4/11; Wed 4/13: Development Geography • Fri, 4/15: Guest Lecture: Dan Parker • **Lab 7 due!**
Week 14	• Mon, 4/18, 4/20: Final Project - Thinking Like Machines • Fri, 4/22: Lecture 8: Perception and Data Visualization *Read: Automate This - Chapter 7 - Categorizing Humankind*
Week 15	• Mon, 4/25, Wed 4/27: Final Project - Thinking Like Machines • Fri, 4/29: Lecture 9: Breaking Intuition *Thinking, Fast and Slow - Chapter 36: Life as a Story;* *Automate This - Chapter 10 - The Future* • **Final Lab due by 11:59PM on Tuesday, May 10, 2016**