Supplementary materials for

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FYEC240
MYTHBUSTERS:
Why People Make Dumb Decisions
Spring 2013

Wednesdays
12:30-1:30 pm, Andrews Hall
7:00-9:00 pm, Copley 205

Instructor: Dr. George S. Lowry
Office: Ragland-Henry House #6 Office phone: 804-752-7306
Email: glowry@rmc.edu Home phone: 804-741-6012
Office Hours: TR 9:45-11:15, T 2:30-4:30, W 1:45-4:30; other times by appointment

Instructor: Dr. Catherine L. Franssen
Office: Ragland-Henry House #3 Cell phone: 804-385-2649
Email: catherinefranssen@rmc.edu
Office Hours: W 1:45-4:30; other times by appointment

Course Description:
This course will explore decision making from two behavioral perspectives, management and neuroscience. A single, interleaved, year-long, project-based course will examine the biological and behavioral elements affecting the way humans make decisions. Common myths about decision making will serve as vehicles for exploring the drives that influence human choice. Employing mini-projects as object lessons will allow instrumental learning that will build the skills and knowledge base required to responsibly conduct a year-long research project. Area of Knowledge Requirements met: One economics/business course under the Social Sciences area and one non-laboratory science courses in the natural sciences under the Natural and Mathematical Sciences area. Three hours each semester. Franssen and Lowry.

Course Objectives:
• Apply the tools of scientific inquiry to differing decision environments
• Explain how physiology and emotion affect decisions
• Examine the impact of historical developments in science on decision making
• Defend a variety of decision challenges by asking questions and seeking answers that are evidence-based
• Define and present ideas through oral and written communication
• Integrate appropriate technologies
• Display competence in accepting different roles in group settings
Texts:
❖ Additional readings as assigned.

Other Materials Required:
❖ 3x5 Index cards- bring at least 2 to each class
❖ 1 ½” to 2” 3-ring notebook, dedicated to this course, MUST have clear view pocket on front and side
❖ 8-15 tab divider set
❖ Students will be required to use Moodle to access and print assignments, supplementary materials, etc.
❖ Additional items as needed.

Grading Scale:

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<th>Range</th>
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<td>63-67</td>
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<td>D-</td>
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Graded Assignments:

<table>
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<tr>
<td>10 Deliverables (35 points/each)</td>
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<td>3 Deliverables (75 points/each)</td>
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<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>Participation, Workshops, Etc.</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000</strong></td>
</tr>
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</table>

Collegiate Credit:
The two courses you are taking as the First-Year Colloquium (FYEC 239-240) can be used to help you meet the collegiate requirements with one satisfying the Social Science AOK (Area of Knowledge) and one Natural Science (without lab) AOK.

It is important that you realize the importance of completing both semesters of this FYEC. Any student who fails FYEC 239 will NOT be allowed to enroll in the second semester FYEC but should complete an alternate AOK course during the spring. These students must still take ENGL 185, if it was not successfully completed in the fall semester. A student who does not complete successfully FYEC 240 will receive elective credit for the fall semester, but does not receive any AOK or CAR credit.
Special Needs:
The American with Disabilities Act of 1990 and other Federal laws require Randolph-Macon College to provide a “reasonable accommodation” to any individual who advises of a physical, psychological, or learning disability. If you have a physical, psychological or learning disability that requires an accommodation, you must first register with the Office for Disability Support Services. Please arrange a meeting with either of the course instructors to discuss your needs and how to register for support services.

Attendance

- Students are expected to attend all class sessions.
- College policy permits three class-hours of discretionary absences for a three-hour course.
- Absences for athletic events and other College activities, as well as illness, are counted as discretionary absences.
- You may miss up to 3-hours of class during the semester without penalty. Beyond that, for each hour of absence you will lose 15 points against your final course grade. If you have a significant medical, judicial, family, or other issue which would require you to miss class you must contact one of us ASAP to negotiate alternative assignments.
- Absence from scheduled group meetings held outside of class time is subject to the same 15 point penalty.
- Persistent tardiness class/lab will constitute an absence.
- Late work is not accepted, therefore if you expect to be absent on a day that something is due you must turn that work in BEFORE the start of class on the day it is due.
- If you are absent on a day of a graded in-class assignment or discussion you will receive a zero (0) on that assignment unless you have alerted us to your absence ahead of time and we have negotiated an alternative assignment prior to class.
- If you will miss a quiz or test for any reason, contact one or both professors immediately. It may be possible to take a test early; however tests given later may increase in difficulty.

Guidelines and Expectations:

- Send all emails to both professors.
- Send all emails to group members.
- Be on time and be prepared to start class at the appointed time.
- All out-of-class assignments are expected to be handed in at the designated times.
- Refrain from talking to classmates during lecture; it is distracting and you may be asked to leave. Please direct comments to the professor or class in general.
- Decorum dictates a “no hat” rule and a call for “appropriate attire”.
- Turn off your cell phone or pager before class starts. All cell phones will be placed on silent mode, put away, and kept out of sight for the duration of the class. This includes checking for text messages.
- The use of a cell phone or other electronic communication device during a quiz or test will result in a grade of zero on that assignment and will be treated as a violation of the academic integrity code.
- All students are expected to have read and to abide by the Academic Integrity Code of Randolph-Macon College.
Deliverables & Research Project
Students will complete one semester-long project which builds from the knowledge, skills, and abilities gained in the first semester of the course. Students will generate hypotheses, design an experiment, conduct research, collect data, analyze data, summarize the study, and report their process and findings in three ways. The three reporting techniques will be an oral presentation, a written lab report, and a static/dynamic presentation tailored for Research Day.

This semester-long project is divided into eighteen deliverables. The scoring for each deliverable will vary, and will be clearly marked on the rubrics distributed at the beginning of the semester. As each of these deliverables is essential to the research project, all scores will be kept.

Deliverables will be a product of in-class exercises and will build on the material from readings and lecture. Deliverables will develop the knowledge, skills, and abilities of students. While portions of some deliverables will be completed in-class, others may be solely out-of-class. Students may be expected to complete each deliverable individually or as a group, which will be clearly specified in the assignment associated with each deliverable. When work is handled as a group, students will complete peer evaluations to clearly describe the efforts of each individual within the group.

All deliverables (and associated notes and research) must be compiled into the same 3-ring binder from fall semester; and labs and notes from fall semester are expected to remain within the binder. Specific guidelines for title page, table of contents, and other required components will be reviewed during the course.

Testing Your Knowledge—Final Exam
- The final exam will be cumulative for the year.
- The final exam may consist of several different types of questions: multiple-choice, fill-in-the-blank, true-false, drawing, labeling, definitions, matching, short-answer and essay-type questions. Questions may draw from the research projects, texts, lecture notes, supplementary readings, seminars, and videos.
- Students arriving late to class on the day of the final exam will not be given additional time and must turn in the test at the appointed time.
- Questions about grading, etc. may be addressed during office hours, by appointment, or by email/phone. The student’s final exam will be kept on file in my office for one year.

Participation and Workshops
The class will often break into small groups to answer specific questions, and report to the class as a whole. Participation and thoughtfulness will be assessed during each class meeting, and will factor into the participation grade of each student.

Unannounced or “pop” quizzes may occur at any point during the semester; these scores may count toward participation grades.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Time/Location</th>
<th>Activities</th>
<th>Readings</th>
<th>Assignments &amp; Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Friday 31-Aug</td>
<td></td>
<td>Meet for first time! Introductions Distribute syllabus &amp; Discuss Class Distribute Lab Manual</td>
<td></td>
<td>Lab 1a (Time mgmt./sched. will be completed in class)</td>
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<tr>
<td>1</td>
<td>5-Sep</td>
<td>12:30-1:30pm Andrews</td>
<td>Time Management Workshop</td>
<td>Bring your school, work, sports, and other schedules!</td>
<td>Lab 2a (Mythbusting Intro will be completed in class)</td>
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<tr>
<td></td>
<td></td>
<td>7-9pm Copley 100</td>
<td>Quiz 1 Mythbusting Intro Scientific Method Intro Sci. Method Experiment</td>
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<tr>
<td>2</td>
<td>12-Sep</td>
<td>12:30-1:30pm Andrews</td>
<td>Guest Lecture John Mingus - Listening Skills</td>
<td></td>
<td>Lab 1b (Time mgmt sheets) Lab 2b (Mythbusting intro)</td>
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<td></td>
<td></td>
<td>7-9pm Copley 100</td>
<td>Quiz 2 Sway Book Club 1 Data Analysis Workshop 1</td>
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<td>3</td>
<td>19-Sep</td>
<td>12:30-1:30pm Andrews</td>
<td>Guest Lecture John Mingus – Group Work</td>
<td></td>
<td>Lab 5 (Data analysis) Lab 6 (Sway Book Club 2)</td>
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<td></td>
<td></td>
<td>7-9pm Copley 100</td>
<td>Quiz 3 Sway Book Club 2 Data Analysis Workshop 2</td>
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<td>4</td>
<td>26-Sep</td>
<td>12:30-1:30pm Andrews</td>
<td>Review Session: Sway</td>
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<td></td>
<td></td>
<td>7-9pm Copley 100</td>
<td>Test 1 Activity: Sways in Action</td>
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<td>5</td>
<td>3-Oct</td>
<td>12:30-1:30pm N/A</td>
<td>Focus Skills: Experimental Research No meeting</td>
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<td></td>
<td>7-9pm N/A</td>
<td>Focus Skills: Presentations No meeting</td>
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<td>6</td>
<td>10-Oct</td>
<td>12:30-1:30pm Andrews</td>
<td>Guest Lecture John Mingus - Presentations</td>
<td>PRESENTATIONS on Sways</td>
<td>Presentations: Sways</td>
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<tr>
<td></td>
<td></td>
<td>7-9pm Copley 205</td>
<td>PRESENTATIONS on Sways</td>
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<tr>
<td>7</td>
<td>17-Oct</td>
<td>12:30-1:30pm Andrews</td>
<td>Review Test 1 &amp; Presentation Grades</td>
<td></td>
<td>Lab 7</td>
</tr>
<tr>
<td>Date</td>
<td>Day</td>
<td>Time</td>
<td>Location</td>
<td>Event 1</td>
<td>Event 2</td>
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<tr>
<td>24-Oct</td>
<td>8</td>
<td>7-9pm</td>
<td>Copley 205</td>
<td>Quiz 4 Econ/Decision Theory (Decision models?)</td>
<td>The Psychology of Investing</td>
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<tr>
<td>31-Oct</td>
<td>9</td>
<td>7-9pm</td>
<td>Copley 205</td>
<td>Quiz 5 Econ/Decision Theory</td>
<td>The Psychology of Investing</td>
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<tr>
<td>7-Nov</td>
<td>10</td>
<td>12:30-1:30pm</td>
<td>Andrews</td>
<td>Review Session: Econ/Decision Theory</td>
<td>Lab 8</td>
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<tr>
<td>14-Nov</td>
<td>11</td>
<td>7-9pm</td>
<td>Copley 205</td>
<td>Advising Workshop: Pre-registration briefing</td>
<td>Lab 9</td>
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<td>21-Nov</td>
<td>12</td>
<td>12:30-1:30pm</td>
<td>Andrews</td>
<td>Review Test 2; Begin Special Neuro Topics</td>
<td>Brain Rules and VSI: Brain</td>
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<tr>
<td>28-Nov</td>
<td>13</td>
<td>12:30-1:30pm</td>
<td>Andrews</td>
<td>Seminar: The Brain: Micro &amp; Macro Workshop: Brain Dissection</td>
<td>Lab 10 (Degree Audit form)</td>
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<td>5-Dec</td>
<td>14</td>
<td>12:30-1:30pm</td>
<td>Andrews</td>
<td>Quiz 8 Review Session: Brain</td>
<td>Lab 11 (Brain- will be completed in class)</td>
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<td>12-Dec</td>
<td>12-</td>
<td>7-9pm</td>
<td>Copley 205</td>
<td>Presentations: Special Neuro Topics</td>
<td>Final Exam</td>
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## Tentative Schedule – SPRING 2013

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<th>Activities</th>
<th>Readings</th>
<th>Assignments &amp; Deliverables</th>
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<tr>
<td>1</td>
<td>13-Feb</td>
<td>11:30-12:30pm Andrews</td>
<td>Semester Intro Review: Brain</td>
<td>How We Decide</td>
<td>Lab 1: Book Club 1</td>
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<td>7-9pm Oliver</td>
<td>Book Club</td>
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<td>Lab 2: Brain</td>
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<td>Workshop: Brain (Lab 2)</td>
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<td>Lab 3: Book Club 2</td>
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<td>20-Feb</td>
<td>11:30-12:30pm Andrews</td>
<td>Brain (Lab 2)</td>
<td>How We Decide</td>
<td>Lab 4: Neuroscience</td>
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<td>7-9pm Oliver</td>
<td>Quiz 1</td>
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<td>Lab 5: Book Club 3</td>
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<td>Book Club</td>
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<td>Lab 6: Decision Theory</td>
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<td>Neuroscience Seminar 1</td>
<td></td>
<td>Lab 7: Book Club 4</td>
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<td>27-Feb</td>
<td>11:30-12:30pm Andrews</td>
<td>Neuroscience Lab</td>
<td>How We Decide</td>
<td>Lab 8: Teambuilding &amp; Project Design</td>
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<td>Quiz 2</td>
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<td>Book Club</td>
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<td>Intro Decision Theory</td>
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<td>6-March</td>
<td>11:30-12:30pm Andrews</td>
<td>Decision Theory</td>
<td>How We Decide</td>
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<td>7-9pm Oliver</td>
<td>Quiz 3</td>
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<td>Book Club</td>
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<td>Decision Theory</td>
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<td>4</td>
<td>13-March</td>
<td>11:30-12:30pm Andrews</td>
<td>Review: How We Decide: Neuroscience, Decision Theory</td>
<td>TEST 1</td>
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<td>7-9pm Oliver</td>
<td>Project Intro</td>
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<td>20-March</td>
<td>11:30-12:30pm Andrews</td>
<td>Library resource intro</td>
<td>Selected readings</td>
<td>Lab 8: Teambuilding &amp; Project Design</td>
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<tr>
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<td>7-9pm Oliver</td>
<td>Seminar: Ethics in Research</td>
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<td>Project Start</td>
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<td>27-March</td>
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<td>SPRING BREAK</td>
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<td>3-April</td>
<td>11:30-12:30pm Andrews</td>
<td>Project Re-group</td>
<td>Selected readings – each group will have focused topic-specific journal articles or book readings</td>
<td>Lab 9: Mini-presentations on projects</td>
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<td>7-9pm Oliver</td>
<td>Quiz 4</td>
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<td>Week</td>
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<td>Time</td>
<td>Activity</td>
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<tr>
<td>9</td>
<td>10-April</td>
<td>11:30-12:30pm</td>
<td>Tutorial</td>
<td>Andrews</td>
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<td>7-9pm</td>
<td>Lab 10: Journal Club</td>
<td>Oliver</td>
<td>Selected readings – each group will have focused topic-specific journal articles or book readings</td>
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<td>17-April</td>
<td>11:30-12:30pm</td>
<td>Research Day Prep</td>
<td>Andrews</td>
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<td>7-9pm</td>
<td>PRESENTATIONS</td>
<td>Oliver</td>
<td>Selected readings – each group will have focused topic-specific journal articles or book readings</td>
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<td>11</td>
<td>24-April</td>
<td>Times to be announced and posted on Moodle</td>
<td>Tutorial</td>
<td>Andrews</td>
<td>Meet in project advisor’s office</td>
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<td>7-9pm</td>
<td>PRESENTATIONS</td>
<td>Oliver</td>
<td>Selected readings – each group will have focused topic-specific journal articles or book readings</td>
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<td>12</td>
<td>1-May</td>
<td>11:30-12:30pm</td>
<td>Quiz 5</td>
<td>Andrews</td>
<td>Research Day Prep</td>
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<td>7-9pm</td>
<td>PRESENTATIONS</td>
<td>Oliver</td>
<td>Selected readings – each group will have focused topic-specific journal articles or book readings</td>
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<tr>
<td>13</td>
<td>8-May</td>
<td>11:30-12:30pm</td>
<td>Research Day Prep</td>
<td>Andrews</td>
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<td>7-9pm</td>
<td>Seminar: Neuroeconomics</td>
<td>Oliver</td>
<td>Lecture: Tying it all together</td>
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<td>Test Review</td>
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<td>14</td>
<td>15-May</td>
<td>11:30-12:30pm</td>
<td>Quiz 6</td>
<td>Andrews</td>
<td>Exam Review</td>
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<td>7-9pm</td>
<td>Set-up &amp; Dress-rehearsal for Research Day</td>
<td>Oliver</td>
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<td>17-May</td>
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<td><strong>RESEARCH DAY</strong> - REQUIRED ATTENDANCE TO PRESENT FINAL PROJECTS</td>
<td></td>
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<tr>
<td>15</td>
<td>22-May</td>
<td>7-10pm</td>
<td>Final Exam</td>
<td>Oliver</td>
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LAB: Scientific Methods of Experimentation

Objectives of this lab:
1. Review scientific methods.
2. Discuss heart rate (HR) and blood pressure (BP) as measures of neuroendocrine function.
3. Practice using each component of the scientific method in a simple experiment.
4. Apply methods to your specific group project.

Blood Pressure/Pulse Rate Experiment Report

GROUP ________________________________________________________________

INTRODUCTION

What do you know about heart rates and blood pressures?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

What do you know about exercise and/or stress?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

What problem do you seek to address?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

What else led you to your hypothesis?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

HYPOTHESIS

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
## METHODS/EXPERIMENTAL DESIGN

**INDEPENDENT VARIABLE (IV)**

______________________________________________________

______________________________________________________________________________

**LEVELS OF IV**

______________________________________________________________________________

______________________________________________________________________________

**DEPENDENT VARIABLE (DV)**

______________________________________________________

______________________________________________________________________________

**CONTROL VARIABLES**

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

**CONFOUNDING VARIABLES**

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

OTHER NOTES:
# RESULTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>Baseline Systolic</th>
<th>Baseline Diastolic</th>
<th>Baseline Heartrate</th>
<th>Experimental Systolic</th>
<th>Experimental Diastolic</th>
<th>Experimental Heartrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td>5</td>
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</tr>
</tbody>
</table>
RESULTS
Average your data and draw a graph to summarize.
CONCLUSION

Did your results support your hypothesis?

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Were your results what you expected? Why or Why not?

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Are you happy with the design of the experiment? If you were to do this experiment over again, what would you change and/or include?

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

How does stress impact heart rate/blood pressure and what have you learned about your own response to stress?

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________
What does blood pressure and pulse rate tell you about your cardiovascular health?

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

If you could design another experiment to test stress effects on BP/HR (that might take longer, include more participants or materials) what other experiments would you like to do? Be creative!

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________
NOW… DESIGN YOUR EXPERIMENT FOR YOUR CULMINATING PROJECT!

INTRODUCTION:

Include key points and questions. Bullet points are encouraged. Include references when available.

HYPOTHESIS
METHODS/EXPERIMENTAL DESIGN

INDEPENDENT VARIABLE (IV) ____________________________________________

LEVELS OF IV (if any) ________________________________________________

DEPENDENT VARIABLE (DV) ____________________________________________

CONTROL VARIABLES ________________________________________________

CONFOUNDING VARIABLES _____________________________________________

OTHER EXPERIMENTAL NOTES:
RESULTS (YOU MAY WISH TO CREATE A TABLE, GRAPHS, ETC.)
RESULTS (YOU MAY WISH TO CREATE A TABLE, GRAPHS, ETC.)
CONCLUSION

What exactly did/will you find?

Did/will your results support your hypothesis?

Were your results what you expected? Why or Why not?

Are you happy with the design of the experiment? If you were to do this experiment over again, what would you change and/or include?
PEER EVALUATION (WEEKLY UPDATE)
Please respond with a 4=always, 3=often, 2=sometimes, 1=rarely, 0=never

<table>
<thead>
<tr>
<th>Write names:</th>
<th>Self</th>
<th>Teammate 1</th>
<th>Teammate 2</th>
<th>Teammate 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended group meetings; stayed in contact with group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was prepared for meetings; completed work on or ahead of time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed all work assigned</td>
<td></td>
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</tr>
<tr>
<td>Helped keep the group focused on the task</td>
<td></td>
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<tr>
<td>Respected others’ ideas</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Contributed useful ideas</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Understood assignments and his/her role in group</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Contributed large quantity of work</td>
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<tr>
<td>Contributed high quality work</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Helped others with their work when needed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked well with other group members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Below response is out of 100%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What percentage do you think each member contributed to the overall written report(s)?</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>What percentage do you think each member contributed to the overall oral presentation(s)?</td>
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</tbody>
</table>

Other notes:
BOOK CLUB
BRAIN RULES by Ori John Medina
Chapters 2-3

2. Choose roles for this assignment.
   a. The **recorder** is responsible for filling out the one worksheet/deliverable that will be handed in for the group.
   b. The **reporter** will be responsible for reporting out your group’s responses to the class as a whole.
   c. Remaining group member(s) will be **researchers**, responsible for supporting the other two roles.
3. Complete the worksheet/deliverable. As you will be handing this in, but will have a quizzam on this material next week, it would be wise to complete a second copy to share with your group mates and study.

<table>
<thead>
<tr>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
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</tbody>
</table>
1. Humans triumph over their environment not by becoming ____________ but by becoming ____________.

2. According to Judy DeLoache, the one human trait that really separates us from gorillas is: ________________________________. An example of this is:

3. Describe evolution through natural selection.

4. What’s the Goldilocks Effect? Why is it important to the development of our brain?

5. What is Variability Selection Theory?

6. What’s Medina talking about with his jazz analogy?
7. What were some of the consequences (good and bad) of bipedalism?

8. Who was Phineas Gage? What happened to him? What did we scientists learn from that?

9. Describe the three parts of the triune theory of the brain:

<table>
<thead>
<tr>
<th>Name</th>
<th>Composition</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

10. What’s the problem/challenge with giving birth while the baby’s head is small enough to fit through the birth canal?
11. What is the Theory of Mind? How is it important to our survival?

12. Why might emotion be connected to learning? Is it possible that emotions are more important than we give them credit for?

13. Draw and label a neuron. Then connect that neuron to another, including a synapse. Label.

14. What research did Eric Kandel do that won him the Nobel Prize in 2000?
15. The brain acts like a muscle: the more activity you do, the larger and more complex it can become. What’s an example of this (from the book)?

16. What are times of major growth and pruning over the course of a human’s life?

17. What might it mean that some people have a Jennifer Aniston neuron?

18. Are our brains completely different from one another? What’s the same and what’s different?
19. Who’s Howard Gardener and what’s his theory?

20. Who is George Ojemann and what has he discovered about the brain?

21. What are your thoughts about John Medina’s ideas on education now that you know a bit more about the brain?
Deliverable: Preliminary Research Proposal

For this assignment one preliminary proposal should be submitted per group. Detailed assignment instructions are given in class which more fully describe each of these components.

<table>
<thead>
<tr>
<th>Deliverable Component</th>
<th>Points Possible</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-class activity: What, Why, How</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Completed on time</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Team members names and roles; Group identity</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><em>(nickname, brand, theme song, etc)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four references</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>What (Research Question)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Why (Who cares? With References)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>How (Experimental Design)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>50</strong></td>
<td></td>
</tr>
</tbody>
</table>
Give your classmates some feedback!! You will be responsible for having these feedback notes in your binder at the start of Spring semester. Rank the presentations (0=did not have; 1=needs serious improvement; 2= needs some improvement; 3= excellent) in the following categories and offer as many useful comments as you can.

<table>
<thead>
<tr>
<th>Component</th>
<th>Points (0-3)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative, Innovative, Engaging, Attention-Grabbing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization: Made sense, Good flow, Easy to understand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content: clear hypothesis and overarching question, good supporting research, logical conclusions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methods: easy to follow, logical, seem to answer the question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual aids (Slides, video, etc.): Images support material, thoughtful layout, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team members involved; good communication; voice, dress, etc.</td>
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</tr>
</tbody>
</table>
Research Day Presentation

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Date</th>
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<tbody>
<tr>
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</table>

**Topic**

<table>
<thead>
<tr>
<th>CONTENT: INTRODUCTION (30pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Background information on 1st relevant topic (with 1 scholarly source)</td>
</tr>
<tr>
<td>_____ Background information on 2nd relevant topic (with 1 scholarly source)</td>
</tr>
<tr>
<td>_____ Background information on 3rd relevant topic (with 1 scholarly source)</td>
</tr>
<tr>
<td>_____ Clear outline of general problem based on background information</td>
</tr>
<tr>
<td>_____ Specific hypothesis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTENT: METHODS &amp; RESULTS (30pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Clear descriptions of all Variables</td>
</tr>
<tr>
<td>_____ Clear descriptions of Procedures used</td>
</tr>
<tr>
<td>_____ Clear descriptions of Data collection and analysis</td>
</tr>
<tr>
<td>_____ Clear descriptions of Results 1 (must include graphs, tables, and/or other imagery)</td>
</tr>
<tr>
<td>_____ Clear descriptions of Results 2 (must include graphs, tables, and/or other imagery)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTENT: CONCLUSION (30pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Discussion of results in light of hypothesis (did they support?)</td>
</tr>
<tr>
<td>_____ Discussion of expectations (were results what you expected, why or why not?)</td>
</tr>
<tr>
<td>_____ Discussion of outcomes relevant to background information (what did you learn?)</td>
</tr>
<tr>
<td>_____ Future directions (what’s the next step or two, and why?)</td>
</tr>
<tr>
<td>_____ Bibliography or reference page (in-text citations expected)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORGANIZATION (30pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Clear, engaging, informative title and title slide</td>
</tr>
<tr>
<td>_____ Length of presentation (10 minutes)</td>
</tr>
<tr>
<td>_____ Overall format and smooth transitions</td>
</tr>
<tr>
<td>_____ Set the context at the beginning and summarized at end</td>
</tr>
<tr>
<td>_____ Clear ending slide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LANGUAGE &amp; DELIVERY (30pts)</th>
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</thead>
<tbody>
<tr>
<td>_____ Creative, innovative presentation;</td>
</tr>
<tr>
<td>_____ Used visual aids and examples effectively;</td>
</tr>
<tr>
<td>_____ Communication: verbal &amp; nonverbal</td>
</tr>
<tr>
<td>_____ Clear demonstration of group identity</td>
</tr>
<tr>
<td>_____ Each group member clearly involved; roles clear</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>AESTHETICS (30pts)</th>
</tr>
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<tbody>
<tr>
<td>_____ Group dress</td>
</tr>
<tr>
<td>_____ Presentation design</td>
</tr>
</tbody>
</table>

__________ OVERALL GRADE (out of 180 points)
Hit the Ground Running: The effect of running indoor vs. outdoor on heart rate, blood pressure, and stress levels.

Dane Wisnosky
Cody Reimel
Olivia Bowling
Will Murray
Ben Wyatt

Introduction

Are you getting the right kind of exercise?

- 75% in Europe live in urban environments. Runners are not able to connect to nature (Coon et al. 2011).
- Natural environments improve your mental wellbeing.
- Running outside lowers anxiety and anger (Bodin et al. 2003).

Introduction

Does running outside provide you with a better workout?

Running outside provides a harder workout for the body.
Pros: ~ Have to push themselves to run up and down hills ~ Control their breathing against the weather ~ Run with wind resistance (Dunn 2011)
Cons: ~ Not able to maintain constant speed or distance.

Running outside provides a more accurate workout for the body.
Pros: ~ Ability to clock speeds and distances ~ A course can be customized (McDowell 2004) ~ Ability to run anytime of the day and year
Cons: ~ Not accurate training for an outside event ~ Not as hard
Running outside is a better workout because it lowers one’s stress levels and blood pressure.

Experimental Design

- What was tested:
  - Heart Rate
  - Blood Pressure
  - Stress Hormone Levels

Procedure

- Resting heart rate, blood pressure were measured and spit samples were taken before exercise began.
- Treadmill Testing
  - 4 minutes of exercise
- Trail Testing
  - 4 minutes of exercise
- Heart rate and blood pressure were measured after exercise. Spit samples for outside and inside were taken.
Blood Pressure

- Resting
- Indoor (Active)
- Outdoor (Active)

Systolic
Diastolic

Heart Rate

- Resting
- Indoor (Active)
- Outdoor (Active)

Cortisol Levels

- Resting
- Indoor (Active)
- Outdoor (Active)
Conclusion

Heart rate increased with outside exercise compared to inside exercise.

Compared to similar studies, outside exercise is known to raise heart rate due to resistance, weather, and natural incline or decline.

Conclusion

Blood pressure decreased with outside exercise compared to inside exercise.

Exercising outside has been know to increase heart rate but decrease blood pressure. The natural elements lowers stress levels and allows one to relax with the natural elements (Bodin et al. 2003).

Conclusion

Cortisol levels decreased when exercising outside.

When exercising outside, it is said that one may be more relaxed when outside. Cortisol is released in response to stress. Outside exercise relieves stress.
**What could be changed?**

- Test variables at different speeds.
  - Running above and below 9mph
- Control speed of runner
- Run in a city, on a treadmill, and then a park
- New independent variable

**References**


Coon, J.T., Boddy, K., Stein, K., Whear, R., Barton, J., Depledge, M.H. “Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors?” Environmental Science and Technology (2011):1761-1772


Running is a big question mark that's there each and every day. It asks you “Are you going to be a wimp or are you going to be strong today?”
FINAL EXAM

Your final exam will be to create a brief presentation, including an introduction and method on a given hypothesis. You will not give the oral accompaniment, just submit your slides (which should be self-explanatory).

- We will give you each a hypothesis to base your presentation around.
- You should adhere to presentation guidelines we’ve discussed in class; write accompanying notes in the “notes” section of each powerpoint slide to elaborate on any points from the slide.
- There is a 10 slide maximum for this assignment
- Your exam period is 7-10pm Wednesday, May 22. You may work on this longer than 3 hours if you would like, and may begin as soon as you have your topic/hypothesis. This exam is due by email to both Dr. Franssen (catherinefranssen@rmc.edu) and Dr. Lowry (glowry@rmc.edu) no later than 10pm Wednesda, May 22. You may turn it in earlier if you would like.

The rubric for this assignment is as follows.

___ Clear, engaging, informative title and title slide (with theme running throughout presentation)
___ Background information on relevant topics (with at least 1 scholarly source and at least 3 total sources)
___ Clear outline of general problem based on background information
___ Specific hypothesis
___ Clear descriptions of all Variables and Procedures used
___ Clear descriptions of Data collection and analysis
___ Discussion of expected results (graphs and/or tables strongly encouraged)
___ Conclusion- Discussion of expected results in context of background and hypothesis; Summary
___ Bibliography or reference page (in-text citations expected) and a Clear ending slide
___ Creative, innovative presentation;

_______________ OVERALL GRADE (out of 100 points)
List of Hypotheses to give students. Each student received only 1. Pseudo-random assignment of hypotheses to students.

1. People who regularly spend more time playing/exercising outside will have less long-term brain damage after a serious head injury.

2. Families of terminally ill children will be less stressed and better able to care for their patient after spending a week away at an outdoor recreational camp.

3. College students who have more positive relationships will be less stressed and earn higher scores on final exams.

4. College students who participate in college-sponsored athletic teams are more cardiovascularly healthy and less stressed.

5. People generally respond better to rewards for desirable behaviors than punishments for undesirable behavior.

6. Taking a break from stressful work by stepping outdoors for a “breath of fresh air” or taking a short walk will increase productivity.

7. Playing background music while working on routine and repeatable tasks will improve productivity.

8. A person’s ability to make high quality decisions depends upon the use of mathematical decision models.
Taking breaks from stress at work: Love Your Job

Jessica King

Stress and Breaks

Stress
- health issues

Take a break!
- Increase productivity and efficiency
- Reduce stress
- Improve health

The effects of stress on productivity

- Health epidemic
- $300 billion per year
- Stress is rarely considered a positive force
Think you are too busy to take breaks?

Taking breaks increases productivity

Procedure

- 2 students with biology paper
- 2 separate rooms
- Student 1: no breaks
- Student 2: two 30 minute breaks

Variables

Independent
- Taking a break

Dependent
- Productivity

Controls
- Paper, time, room
Discussion

- Correct hypothesis
- Overall performance increased
- Stress is the number one productivity issue
Works Cited


“*The Effects of Negative Stress on Productivity*.” The Los Gvep Search and Staffing Professionals 2012. 22 May 2013.