



PRogram in Integrated Science and Mathematics
Mercer University Spring 2017

Spring Credits: STA 126 (3 Credits), PHY 141 (4 Credits), PSY 101 (3 Credits)
Monday, Wednesday, Friday 1:00 – 2:50 PM, Tuesday & Thursday 1:40 – 4:40 PM
SEB 143, SEB 144, and SEB 217
muprism2015@gmail.com

Instructors

Dr. Katie Northcutt (Biology)
Northcutt_KV@mercer.edu Willet 112 (478) 301-2348
Office Hours: Tuesday, Wednesday, and Thursday 11:00 – 12:00; By Appointment

Dr. Jeff Pullen (Statistics and Precalculus)
Pullen_J@mercer.edu Ware 213 (478) 301-4014
Office Hours: Tuesday 9-10 (ARC), Wednesday 4-5, Thursday 10:00-12:00; By Appointment

Dr. Chamaree de Silva (Physics)
Desilva_C@mercer.edu SEB 244 (478) 301-2770
Office Hours: Monday, Wednesday, and Friday 3:00 – 4:00; By Appointment

Dr. Jarred Jenkins (Psychology)
Jenkins_JR@mercer.edu Wiggs 201 (478) 301-2973
Office Hours: Wednesday 9 – 11, 3:15 – 5:15; By Appointment

Peer Instructor

Shannon Merritt
Session Times: TBA
Shannon.Marie.Merritt@live.mercer.edu

Required Texts

Cacioppo, J. T. et al. (2016). *Discovering Psychology: The Science of the Mind* (2nd ed.). Boston, MA: Cengage.

Knisely, K. (2013). *A Student Handbook of Writing in Biology* (4th ed.). Sunderland, MA: Sinauer Associates.

Reece, J. B. et al. (2011). *Campbell Biology* (10th ed.). Boston, MA: Pearson Education, Inc.

Stewart, J. et al. (2014). *Precalculus: Mathematics for Calculus* (6th ed.). Belmont, CA: Cengage

Sullivan, M. (2016). *Statistics: Informed decisions using data* (5th ed.). Pearson Education, Inc.

Walker, J. S. (2010). *Physics* (4th ed.). San Francisco, CA: Addison-Wesley.

Course Description

While often taught in isolation, the various fields of science and mathematics do not work in such an isolated fashion. Each discipline from psychology to physics to mathematics, biology, and statistics can inform each of the others or at the very least assist in the understanding of the others' concepts and findings. Reaching across the aisle into these disciplines can foster a better understanding of the world around us and allow us to think more diversely and critically when presented with new insights and information. This program is designed to encourage you to start building these bridges of integration. As faculty, we hope that you will begin to see connections not just in the courses we teach, but also across the broader scope of courses taught within the college and the university.

We hope to accomplish this goal by exposing you to the existing connections between disciplines, but also by developing new ones. This development may occur in the classroom, may be generated by you or other students, or may be discovered through research. In this course, you will assist in the designing and conducting of a real research project. This project will be aimed at bringing the disciplines together and generating new, valuable research findings. You will gain an assortment of research skills that will better prepare you to seamlessly transition into upper division laboratories and faculty-led research projects.

Student Learning Outcomes

You will be able to explain the course concepts covered in PSY 101, including biological, cognitive, social, and environmental influences on behavior, as well as the variety of philosophical, theoretical, and empirical approaches adopted by the discipline.

You will be able to explain the course concepts covered in PHY 141, including kinematics, vectors, fluids, Newton's laws, conservation of energy, and momentum.

You will be able to explain the course concepts covered in STA 126, including sampling methods, experiments, numerical and graphical descriptive methods, correlation and regression, contingency tables, probability concepts and distributions, confidence intervals, and hypothesis testing for means and proportions.

You will be able to show basic lab and field research skills, including collecting data, analyzing data with statistical methods, interpreting data, and communicating results.

You will be able to apply physical, mathematical, statistical, biological, and psychological concepts to novel situations in multiple disciplines.

Honor Policy

As a student of Mercer University, it is expected that you abide by the following pledge: "I pledge myself neither to give nor receive help during tests nor for any individual assignments or papers, nor to use any information other than that allowed by the instructor. I further pledge that I will not allow to go unreported to the proper persons any violations of the Honor Code and that I will give true and complete information before the Honor Council." All suspected violations of the University Honor Code will be forwarded to the Honor Council. Academic dishonesty and plagiarism will not be tolerated.

Reasonable Accommodations

Students requiring accommodations or modifications for a disability should inform the instructor at the close of the first class meeting or as soon as possible. The instructor will refer you to the ACCESS and Accommodation Office to document your disability, determine eligibility for accommodations under the ADA/Section 504 and to request a Faculty Accommodation Form. Disability accommodations or status will not be indicated on academic transcripts. In order to receive accommodations in a class, students with sensory, learning, psychological, physical, or mental disabilities must provide their instructor with a Faculty Accommodation Form to sign. Students must return the signed form to the ACCESS Coordinator. A new form must be requested each semester. Students with a history of a disability, perceived as having a disability, or with current disabilities who do not wish to use academic accommodations are also strongly encouraged to register with the ACCESS and Accommodation Office and request a Faculty Accommodation Form each semester. For further information, please contact Carole Burrowbridge, Director and ADA/504 Coordinator, at 301-2778 or visit the ACCESS and Accommodation Office website at <http://www.mercer.edu/disabilityservices>.

Grading Scale

A	89.5% -- 100%
B+	86.5% -- 89.4%
B	79.5% -- 86.4%
C+	76.5% -- 79.4%
C	69.5% -- 76.4%
D	59.5% -- 69.4%
F	0.00% -- 59.4%

Course Grade

5 Mid-Term Exams	40%
Course Assignments	25%
Course Quizzes	5%
Participation	5%
Research Proposal	6%
Poster Presentation	9%
Final Exam	10%

Grading System

The course will be graded as is indicated above. You will earn one grade for your PSY 101, PHY 141, and STA 126 credits. All content-based assignments will feed into your single, final grade.

Mid-Term Exams (40%)

In this class, you will have 5 mid-term exams. Unlike last semester, each exam will count towards your final grade. Each exam will pull primarily from material covered in the weeks immediately preceding that exam. However, many themes, ideas, and concepts will pervade throughout the course and it is your responsibility to maintain an awareness of these more foundational concepts and be prepared for any cumulative components on each exam. The exams will be varied in structure and in question type, but we will work towards giving you a better sense of these exams as they approach. You can expect to see many short answer, short essay, and problem solving type questions in addition to some basic multiple choice assessments. For your convenience, the exam schedule is listed below.

Exam	Date	Material Covered*
Exam 1	Jan 25	IVs & DVs, Memory, Kinematics, Forces, Numerically Summarizing Data, Regression & Problem Solving Techniques
Exam 2	Feb 15	Social Psych, Forces, Probability
Exam 3	Mar 2	Classification, Disorders & Treatment, Normal Distributions, Work/Energy
Exam 4	Mar 27	Vomiting Module (S & P, Motivation/Emotion, Digestion, Pressure, Fluids)
Exam 5	Apr 24	Personality, Development, Inference, Fluids, Momentum

**Please note that this is not an exhaustive list and that things may change*

Course Assignments (25%)

Throughout the course, you will receive a number of class assignments. These include lab reports, reflection papers, problem sets, and likely various other types of activities. You'll be provided with plenty of instruction on each assignment and ample time to complete each one. Collectively, these assignments will make up 25% of your course grade.

In addition to your standard assignments, as part of your psychology requirements you must participate in 6 half hour credits worth of research. Successful participation in these research experiences will account for up to 3% of your course grade. Additional information will be given to you in class.

*Note: As research participation is voluntary, you do have a choice as to whether or not you will participate in such research. An alternative assignment will be provided to those students who chose this option. Students must voice that choice to Dr. Jenkins by **February 6, 2017**.*

Comprehension Checks (5%)

Throughout the course, we will randomly present you with a "Comprehension Check." These will be unannounced and will likely consist of a question, or a set of questions on recent class material. This will help to gauge your understanding of the material, encourage you to regularly review material, and help you prepare for exam questions. Collectively, these CCs will make up 5% of your grade and you will not be permitted to make up any missed CCs.

Research Proposal (6%)

During the first month of the semester, your group will write a proposal for your group's research project this semester. Your proposal should include a rationale for the experiment using published literature and the results we obtained last semester, a description of the experimental methods including all variables and levels, and your hypothesis. Your group will turn in a rough draft of the proposal on **Feb 17**, and we will review and give you feedback on this draft. The final draft is due **Feb 27**.

Poster Presentation (9%)

During the final exam week, groups of students will be required to present (in poster form) the various findings of the research project. Each group will be responsible for handling an individual or set of individual research questions. This semi-formal poster session will be held on **May 2, 2017 from 7PM – 10PM**. Each group will be required to write-up, analyze, and present their findings. Other faculty and students will be invited.

Final Exam (10%)

The course will also conclude with a final exam. The questions included on this final exam will be cumulative in nature and will be designed to assess your knowledge of the materials covered in the program. Much like the earlier exams, you will be presented with various question types as part of your final evaluation. More details on this exam will be provided as the end of the semester approaches. This exam will be held on **May 5, 2017 from 9AM – 12PM**.

Participation (5%)

You will begin the course with a full set of participation points. Throughout the course, small assignments and class activities may appear. Failure to complete these assignments may result in a loss of points from your participation grade. Furthermore, we reserve the right to reduce your participation grade for consistently poor behavior in class (e.g.,

excessive tardiness, talking, sleeping, etc.). And lastly, for each unexcused absence, your participation score will be docked.

Attendance and Classroom Behavior

Your presence in class is essential to the quality of the course and your grasp of the material. Active participation and class discussion is strongly encouraged and will likely facilitate your understanding (and often results in a higher grade). If you are unable to attend class (with an excused absence), please let us know in advance. Ultimately, you are responsible for the material presented in class and it is strongly suggested that you seek out peers or your faculty to identify any material you have missed. For each unexcused absence, your participation grade will be docked.

Secondly, please be respectful of the classroom environment and your fellow classmates. Out of courtesy for all those participating in the learning experience, all cell phones and pagers must be turned off before entering any classroom, lab, or formal academic or performance event. It is also expected that you refrain from talking amongst peers and sleeping during class.

Mercer athletes, other students on university sponsored events, and students with accommodations made by the Disability Support Services Coordinator will be excused up to 8 times during the semester.

Makeup Assignments and Exams

Makeup exams will be discussed and given on an individual basis and must be accompanied by an excused absence. You must notify us before the exam begins (unless you are physically incapacitated and cannot contact us prior to the exam), or you will not be permitted to take a makeup exam. If you do take a makeup exam, we hold the option to set the date for the exam and the decision to give you a more difficult exam. If you do not take an exam (or its makeup), you will receive a grade of "Zero" for that exam.

Late Assignments

Late assignments will not be accepted. Each assignment must be turned in on the appropriate due date, at the start of class (e.g., 1 PM or 1:40 PM), and as a hard copy (not an emailed version). Please print out any hard copies well in advance of class so that you don't run into any printer issues. Printers seemingly break and run out of ink all the time, so please think ahead and avoid the significant penalty of a missed assignment. In rare circumstances, we may allow you to submit a copy via email (due to printer issues or other unforeseen circumstances), but that emailed copy must make it to our inbox prior to the start of class and you must bring us a hardcopy as soon as possible following class time. As a final note and because we actually want you to learn the material, you may be able to turn in a late assignment for feedback, but not for a grade. However, this will be handled at the discretion of each individual faculty member and may vary from assignment to assignment.

Course Schedule & Due Dates
You will be notified of any changes

Date	Reece	Sullivan	Walker	Cacioppo	Topics of the Week
Week 1: Jan 9		3.2-3.4	Ch. 2	Chs. 2 & 9	IVs & DVs, Memory, Descriptive Statistics, Kinematics
Week 2: Jan 16		3.5,4.1-4.3	Ch. 2	Ch. 9	Memory, Summary Stats, Regression, Kinematics
Week 3: Jan 23		4.3, 5.1-5.3	Ch. 5		Regression, Probability, Forces
Week 4: Jan 30		5.4, 5.6, 6.1	Ch. 5	Ch. 13	Social Psych, Forces
Week 5: Feb 6		6.2,9.3	Chs. 5 & 6	Ch. 13	Social Psych, Forces
Week 6: Feb 13	Chs. 32 & 33		Chs. 6 & 7		Animal classification, Forces, Work, Energy
Week 7: Feb 20	Chs. 33 and 34	7.1-7.2	Ch. 8	Ch. 14 & 15	Disorders & Trmt., Animal classification, Standard Normal, Energy
Week 8: Feb 27	Ch. 34		Ch. 8	Ch. 14 & 15	Disorders & Trmt., Animal classification, Energy
Week 9: Mar 13	Ch. 41		Ch. 15	Ch. 5 & 7	S&P, M&E, Digestion, Pressure, Fluids
Week 10: Mar 20	Ch. 41		Ch. 15	Ch. 5 & 7	S&P, M&E, Digestion, Fluids
Week 11: Mar 27		Ch 8, Ch 9	Ch. 15	Ch. 11	Development, Inference, Fluids
Week 12: Apr 3		Ch 9, Ch 10	Ch. 15	Ch. 11	Development, Inference, Fluids
Week 13: Apr 10		Ch 11	Ch. 15	Ch. 12	Personality, Inference, Fluids
Week 14: Apr 17		12.1, 13.1-13.2	Ch. 9	Ch. 12	Personality, Inference, Momentum
Week 15: Apr 24					Research Project Posters
May 2	Final Presentations 7:00 – 10:00PM				
May 5	Final Exam 9:00AM – 12:00PM				

**March 23rd—Last Day to Withdraw!!*

Other Important Dates

Jan 16: No Class—MLK Jr. Day	Mar 6-10: No Class—Spring Break
Jan 30: Mercer Basketball Game	Apr 7: No Class—BEAR Day
Feb 25/26: Aquarium trip	Apr 14: No Class—Good Friday