

# STAAC Class Description 2023-2024

Course Title:	Physics 100		
Teacher:	Dr. Stephen Strickland		
Grades:	10-12		
Meeting Day(s):	Tuesday (virtual) & Thursday (in person)	Time(s):	8:00-9:30 am
Student minimum required for this course:	4	Maximum accepted	20

## **Course Description including any prerequisites or other requirements:**

Physics 100 is an introductory course in physics designed to teach students the beauty and order of the physical world that we know through our senses. By first demonstrating the physical principles in real systems, and then proceeding into the equations by way of careful measurement, the students will not only know the equations that lend modern physics so much power but also know the meaning that the equations signify. Taught as a class with integrated lab activities, the students will garner hands-on experience. The first semester will cover classical mechanics and gravitation culminating in a study of our solar system and of space travel. The second semester will cover electricity & magnetism culminating in a study of cameras, telescopes, microscopes, and radios. Each semester will be 12 weeks and comprised of 24 lectures. Each lecture will have a set of lecture slides, a worksheet, and a homework. The lecture slides will serve as the primary reference material but supplemental readings from Apologia Physics will also be provided. Each unit will have a take-home exam. This college preparatory course requires geometry and algebra I as prerequisites. No textbook is required for this course, but Apologia Physics may be used as a secondary reference.

Topics in classical mechanics include:

- Kinematics
- Momentum, conservation of momentum, & collisions
- Force & Newton's laws of motion
- Energy & conservation of energy
- Simple harmonic motion & uniform circular motion
- Angular momentum & torque
- Newtonian gravitation

Topics in electricity & magnetism include:

- Charge and the electric field
- Circuits
- The magnetic field
- Magnetic induction
- Electromagnetic waves
- Geometric & Wave optics

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## Costs

<ul style="list-style-type: none"><li>• Total Tuition: \$500.00</li></ul>
<ul style="list-style-type: none"><li>• <b>Payment Option 1:</b> Full amount of \$500.00 to be paid on July 1st.</li></ul>
<ul style="list-style-type: none"><li>• <b>Payment Option 2:</b> Split amount of \$250.00 as two payments due on July 1<sup>st</sup> and December 1<sup>st</sup></li></ul>
<ul style="list-style-type: none"><li>• Venmo information: <u>margaret_strickland</u> (Venmo is the preferred payment method)</li></ul>
<ul style="list-style-type: none"><li>• Checks made out to: <u>Stephen Strickland</u></li></ul>
<p style="text-align: center;">and mailed to: <u>1266 Atkins-Trimmi Boulevard , Hoover, AL 35226</u></p>

## Student Responsibilities and Expectations

<p>Before class, students are expected to review their notes, memorizing pertinent definitions and equations.</p> <p>During class, students are expected to participate in the lecture: writing additional notes regarding the lecture slides, engaging in class discussion, and completing the corresponding worksheet.</p> <p>After class, students are expected to update their study guides, complete their homework, and submit the worksheet and homework prior to the start of the next meeting.</p> <p>Although virtual classes will be pre-recorded, the students will be expected to watch the recordings while still completing their worksheets.</p> <p>Virtual office hours will be offered twice per week for students to ask questions. In learning physics, in learning to solve problems, one must first have a problem, and then work through it. For first time learners, they need a guide in working through the problems. Attending office hours is ESSENTIAL as I will help guide you through problem solving. Plan to visit one each week (even if only for a few minutes).</p> <p>Each unit will have a corresponding exam.</p>
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## Grading Breakdown

Expect revisions to come, but tentatively:

Attendance:	10%
Quizzes:	10%
Worksheets:	10%
Homeworks:	10%
Labs:	10%
Exams (together):	50%

## Textbooks and Supplies Required

No textbook is required. The lecture slides (which will be posted for every lecture) will be the primary reference material. If the students would like a supplementary reference, the Appologia text may be purchased. Alternatively, OpenStax has a free physics text that may be downloaded.

## Teacher Biography

Dr. Stephen Strickland is a native of Spartanburg, SC. Dr. Strickland earned a BS in Physics and BA in Mathematics from Wofford College and went on to earn his Ph. D. in Physics at North Carolina State University. Dr. Strickland's graduate research focused on surfactant-covered Faraday waves, a class of water waves that emerges when a vessel is vertically vibrated. As an Assistant Professor of physics at Samford University, Dr. Strickland continues his research with his undergraduate students, studying non-linear pattern-forming fluid dynamics and also fluid systems that exhibit quantum-analogous behaviors.

Dr. Strickland and his wife, Maggie, are parents of two boys, Daniel and John. In his spare time, Dr. Strickland enjoys gardening, wood working, studying philosophy and theology.

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## Teacher Contact Information

E-mail: sstrick5@samford.edu

## Additional Information

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