



15800 Calvary Rd  
Kansas City, MO 64147

# Syllabus

<b>COURSE:</b>	PHYS100 T&T-N Survey of Physical Science (blended), and PHYS101T&T-N (lab)
<b>CREDIT:</b>	3 Semester Hours (class). 2 Semester Hours (lab).
<b>SEMESTER:</b>	Spring 2022
<b>INSTRUCTOR:</b>	Chris Basel
<b>CONTACT INFO:</b>	Phone: 816-425-6201 E-mail: <a href="mailto:chris.basel@calvary.edu">chris.basel@calvary.edu</a>
<b>OFFICE:</b>	Ed. 224
<b>MEETING TIME:</b>	PHYS100T Wednesday 8:00 – 11:00 AM PHYS100T-N Online PHYS101T1 – Wednesday 1:00 – 3:00 PM PHYS101T2 – TBD
<b>LOCATION:</b>	PHYS100T – Ed. 118 PHYS100T-N – Online PHYS101T – Ed. 118 PHYS101T-N – Online

This is an introduction to physical science from the biblical worldview. It's an exciting time to study science! Scientific discoveries are made every day and our understanding of nature has increased incredibly. Some suggest that the Bible is inconsistent with science. However, on the contrary, science and the Bible are completely consistent, and this should strengthen our faith as we discover more and more about the incredible, awesome nature of our Creator God! Those with a secular worldview try to use science to "disprove" the Bible. You will find that knowing some science will help you defend your faith when these fallacious arguments are used.

## I. COURSE DESCRIPTION:

PHYS100 T&T-N (3 hrs) A broad overview of the physical sciences for the non-science major. Emphasis is placed on a conceptual understanding of the basic principles of physics, geology, astronomy and meteorology from a biblical perspective. Concurrent enrollment in PHYS101 is required.

Choose one of the following lab sections:

PHYS101 Survey of Physical Science Lab. 2 hours. This course is one option for the lab component of PHYS100 and must be concurrent with PHYS100. (Fee: \$30)  
(This is PHYS101T – in-class/on campus)

PHYS101 Survey of Physical Science Lab (Online Only). 2 hours. This course is a second option for the lab component of PHYS100. If PHYS101 is taken, it must be concurrent with PHYS100. PHYS101 is completed remotely and requires the purchase of a lab kit. (Fee: \$250)  
(This is PHYS101T-N)

*PHYS100T&T-N are blended classes, meaning that both campus and online students take this class together. Campus students attend the classes in person, online students attend the classes via the online classroom. All interaction and assignments for campus and online students are done in the online classroom.*

*Our Mission: "...to prepare Christians to live and serve in the church and in the world according to the Biblical worldview."*

## II. COURSE OBJECTIVES:

### A. General competencies to be achieved. The student will:

- 1) Demonstrate an understanding of the fundamental concepts of physical science from a biblical worldview.
  - a. Program Objectives 1 and 3.
  - b. Assessments – chapter review questions and exams.

### B. Specific competencies to be achieved. The student will:

- 1) Demonstrate the ability to apply the concepts of physical science to real-world applications.
  - a. Program Objectives 1, 3, and 4.
  - b. Assessments – chapter review questions and exams.
- 2) Read literature covering the biblical worldview of physical science and demonstrate your understanding of these concepts by reporting on the literature clearly and concisely.
  - a. Program Objectives 2, 3, and 4.
  - b. Assessments – Biblical worldview essays.

## III. REQUIREMENTS: (lab requirements only for PHYS101)

### All students will be expected to:

- Complete reading assignments, listen to lectures, and complete homework, essays, quizzes, lab reports and tests on schedule. The schedule will be posted on Canvas.
- Be prepared for labs (read handouts, listen to lectures, and complete prelab assignments).
- Participate actively and safely during lab experiments. Complete lab reports on schedule. The schedule will be posted on Canvas. Use of cell phones for any purpose, including calls and texting during lab is not allowed.
- Attend lab regularly. Excessive absences may result in earning a lower grade. *See attendance policy posted on Canvas.* If you must be absent, inform me ahead of time, if possible.
- Participate actively in lectures and lab experiments. Use of computers or cell phones during lectures and lab for any non-academic, non-class related (non-class websites, texting, calls, etc.) purpose is not allowed. Taking pictures for academic reasons is acceptable. Computers may be used for working problems, taking notes, collecting data (lab) or other reasons approved by the instructor.
- Work safely in the lab.

## IV. METHODS (references to the lab are only for PHYS101):

- A. **LECTURES:** Lectures will consist of material from the book and additional material from a variety of sources. Students should take notes during lectures as the homework questions will be directly related to the lectures and not all the information can be obtained from the book.
- B. **READING:** The textbook provides a framework for the class. The text is **not required** as the information can be obtained from lectures or other online sources. However, most students will find the textbook very useful for studying. Not every topic in the textbook will be addressed. Emphasis will be placed on the most important concepts and practical applications. The instructor will tell you which sections of each chapter will be covered.
- C. **HOMEWORK QUESTIONS:** Homework questions will normally be completed using the Mastering Physics software. It is imperative that you complete the homework problems in order to understand the material and to do well on tests. Test questions will be taken directly from the homework, possibly with minor modification.
- D. **BIBLICAL WORLDVIEW ESSAYS:** The purpose of this portion of the class is to develop your ability to analyze the complex issues associated with the debate over creation and evolution from a biblical worldview and

to learn that you can defend your faith (1 Peter 3:15) using science. You will read articles or watch videos and then prepare essays that demonstrate your understanding of the topics. The topics include such things as the nature of science, the origin of evolutionary deception, ways to recognize evolutionary deception, and a review of some of the key biological science issues associated with the debate.

Essays must follow Turabian style according to “A Manual for Writers of Research Papers, Theses, and Dissertations,” 9th edition, (Author-Date style) by Kate Turabian except as noted in this paragraph and the Essays Guidelines document on Canvas. Essays should be around one-half page, single spaced, using Times New Roman 12 font. Essays should not be longer than three-quarters of a page. Do not include a title page or a reference page. Put a descriptive title and your name and date at the top of the page. Include the reference after the bottom of the essay. You will be graded on content and understanding of the topics. Your writing should be clear and concise. Proper writing style including clarity, grammar, and punctuation will be considered during grading. Do not use first person. Discuss what the article or video said and means, not what you think about it. Make sure you use quotation marks as needed.

*Plagiarism is defined as copying any part of a book or paper without identifying the author. This also includes taking another person’s ideas and presenting them as your own.*

- E. TESTS:** Test questions used for the regular exams will be taken from the homework, possibly with minor modification. In addition, exams may include essay questions covering course topics. All tests will be taken using the Mastering Physics software. Test questions for the comprehensive portion of the final will be taken from the regular tests. Lab final (PHYS101T) questions will be taken from the lab handouts.

Online students (PHYS100 T-N) use the ProctorU test proctoring service as do on-campus students (PHYS100 T) not taking tests during the class period. The Exam Policy on Canvas gives more details. Also see the ProctorU addendum at the end of this syllabus.

- F. MISSED OR LATE HOMEWORK OR ESSAYS:** Grades on late homework and essays will be decreased for each day that they are late. Assignments that are more than one week late will not be accepted and will receive no credit.

**G. LAB PREPARATION AND REPORTS:**

**Students taking PHYS101T:** Lab instructions must be read before completing each lab. Lab reports should be completed and turned in via Canvas by the beginning of the next lab. Grades on late lab reports will be decreased for each day they are late. Lab reports that are turned in more than three days late will not be accepted and will receive no credit.

**Students taking PHYS101T-N:** Prepare lab reports as instructed by the software. Grades on late lab reports will be decreased for each day they are late. Lab reports that are turned in more than three days late will not be accepted and will receive no credit.

**H. LAB ATTENDANCE:**

**PHYS101 T:** Lab attendance is required except for absences officially excused by the university, or for extenuating circumstances such as illness or death in the family. Labs missed for any reason must be made up at a later date, typically the next week. Missing more than two labs, even when excused by the university, may result in a lower grade. See the lab attendance policy on Canvas for details.

**PHYS101 T-N:** Lab is conducted remotely and attendance at a specific time is not required.

**I. LAB SAFETY:**

**Students taking PHYS101 T:** Safety during lab activities must be observed at all times for your own safety, as well as the safety of others around you. Students performing lab experiments are responsible for planning and conducting experiments in accordance with the lab instructions and lab safety rules. Additional safety rules (when

required) will be included in lab handouts. Safety will be discussed at the start of each lab, so if you are late, you may not be allowed to attend. Each student who participates in a lab exercise must clean up their lab area when finished before leaving. **All students must take a lab safety quiz covering the safety rules and sign a safety contract before working in the lab.**

**Students taking PHYS101 T-N:** Safety during lab activities must be observed at all times. Students performing lab experiments are responsible for planning and conducting experiments in accordance with the lab instructions and lab safety rules. Additional safety rules (when required) may be included with each lab. **All students must take a lab safety quiz covering the safety rules and sign a safety contract before completing any labs.**

#### J. HOW TO GET HELP:

I am available during my posted office hours in Ed. 224. Also, feel free to contact me via email or phone (see email address and phone numbers above).

*The Clark Academic Center ([learning@calvary.edu](mailto:learning@calvary.edu)) is dedicated to providing free academic assistance for Calvary University students. Student tutors aid with all facets of the writing process, tutor in various subject areas, prepare students for exams and facilitate tests. Please take advantage of this service.*

*Students with disabilities have the responsibility of informing the Accommodations Support Coordinator ([aso@calvary.edu](mailto:aso@calvary.edu)) of any disabling condition that may require support.*

#### V. GRADING *See grading scale in the university catalog.*

##### PHYS100 T&T-N

Chapter Review Questions	15%
Exams	65%
Biblical Worldview Essays	20%

##### PHYS101 T

Lab Investigations and Reports	85%
Midterm	5%
Final	15%

##### PHYS101 T-N

Lab Investigations and Reports	100%
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#### VI. MATERIALS – Required

- A) **The Bible:** The Bible is a required textbook in every course at Calvary University. To facilitate academic level study, students are required to use for assignments and research an English translation or version of the Bible based on formal equivalence (meaning that the translation is generally word-for-word from the original languages), including any of the following: New American Standard (NASB, English Standard Version (ESV), New King James (NKJV), or King James (KJV). Other translations and versions based on dynamic equivalence (paraphrases, and thought-for-thought translations like NLT and NIV) may be used as supplemental sources. Please ask the professor if you have questions about a particular translation or version.
- B) **Mastering Physics Software:** It is **required** that you purchase access to the **Modified Mastering Physics** software. This is required to complete the homework and tests. The cost is approximately \$70. The cost with the eText (recommended) is approximately \$120. It will also allow access to many on-line helps that are useful for learning this material. **I will post detailed instructions on how to purchase access to the software on Canvas. Do not purchase the software without first reading this!** Access to Mastering Physics and the eText

expires when the course is over. **Make sure you purchase the software associated with the textbook, which is described below** in the optional materials section.

- C) **Lab kit (only for students taking PHYS101 T-N):** It is required that you purchase the lab kit prepared for this class to complete the lab experiments for PHYS101 T-N. The cost is **approximately \$250**. Detailed instructions for purchase will be given on Canvas.

## VII. MATERIALS – optional

### A. Textbook – optional, but strongly suggested.

Conceptual Physical Science (6th Edition)  
Authors: Paul G. Hewitt, John Suchocki, and Leslie A. Hewitt  
ISBN-13: 9780134060484  
Pearson Education, Inc., 2017

The textbook is **optional**; however it is strongly suggested. If you want a hard copy of your own, consider purchasing a used version on the internet (typically around \$50). New versions are around \$200. Consider purchasing the eText with the Mastering Physics software (approximately \$120). However, note that you will not have access to the electronic version when the course ends.

### B. BIBLIOGRAPHY

Some **supplementary** books that would be useful for understanding the creation/evolution topics are:

- 1) *Creation: Facts of Life* by Gary Parker (1994).
- 2) *Evolution Exposed: Earth Science* by Roger Patterson (2010).
- 3) *The New Answers Book 1, 2, and 3* by Ken Ham, et al. (2007-2013).
- 4) *In Six Days* by multiple authors (2011) (See the physical science-related chapters).
- 5) *Wonders of Geology* by multiple authors (multiple years).
- 6) *Taking Back Astronomy* by Jason Lisle (2008).
- 7) *Evolution Exposed: Biology* by Roger Patterson (2007) (See the “What is Science” chapter).

These books (and several others) are **FREE** at <https://answersingenesis.org/answers/books/>

**VIII. TENTATIVE CLASS SCHEDULE:**

A detailed version of the class schedule including due dates will be posted on Canvas. Any changes to the schedule will be announced in class, by email, or posted on Canvas.

<b>LECTURE TOPIC(S)</b>	<b>CHAPTER(S)</b>
<ul style="list-style-type: none"> <li>• Introduction to the foundations of creation science</li> <li>• Motion, momentum, and energy</li> </ul>	1-3
Energy (cont.), Gravity	3-4
Fluids	5
Thermodynamics	6-7
Electricity and Magnetism	8-9
Waves, sound, and light	10-11
Atoms and the Periodic Table	12
The Atomic Nucleus and Radioactivity	13
Elements of Chemistry	14
Bonding	15
Mixtures	16
How Chemicals React	17
Chemical Reactions	18
Organic Chemistry	19
Geology	Parts of 20-23
Meteorology and Astronomy	Parts of 24-27

## **ProctorU Addendum**

Calvary University uses ProctorU test proctoring service. ProctorU is a live online proctoring service that allows you to take your exam from the comfort of your home. ProctorU is available 24/7, however, **you will need to schedule your proctoring session at least 72 hours in advance to avoid any on-demand scheduling fees.** Creating a ProctorU account is simple. You can do so by going to <https://go.proctoru.com/students/users/new?institution=2045>.

Students must read all information and comply with all directions below to be successful for their proctored exam experience. Calvary University hopes that students will have a smooth experience, and to decrease student anxiety and increase success, please use this guide to help you plan for your test. Please note that, per ProctorU, there will be penalties for students who miss their testing window. Technical trouble will not be an excuse for missing the window. Therefore, pay attention to all details within this guide, and all links included.

**System Requirements:** Please see the information below supplied by ProctorU for system requirements. If your computer does not have these capabilities, please consider borrowing a computer as you will still be required to complete the exam using the live proctor system with ProctorU. Please note that you will not be able to take your exam(s) in the Calvary University Library due to the activity that will be picked up in a public place.

In order to use ProctorU, you will need a high-speed internet connection, a webcam (internal or external), a Windows or Apple Operating System, and a government issued photo ID. ProctorU recommends that you visit <https://test-it-out.proctoru.com/> prior to your proctoring session to test your equipment. They recommend you click on the button that says “connect to a live person” to fully test out your equipment. If using Firefox, please make sure that you are using the current version of your Firefox browser and have downloaded the ProctorU extension available at <https://www.proctoru.com/firefox>.

Type	Minimum	Recommended	Calvary University Minimum
Web Camera	640×480 resolution	1280×720 resolution	1280×720 resolution
PC Users	Windows Vista	Windows 10 (10 S is not supported)	same
Mac Users	OS X 10.5 or higher	OS X 10.13 High Sierra	same
Internet Download Speed	.768 Mbps	1.5 Mbps	3 Mbps
Internet Upload Speed	.384 Mbps	1 Mbps	2 Mbps

RAM	1024 MB	2 GB	same
Ports	1935, 843, 80, 443, 61613, UDP/TCP	1935, 843, 80, 443, 61613, UDP/TCP	same

- Desktop computer or laptop (not a tablet, Chromebook or cell phone).
- Webcam and microphone (built-in or external) – test your webcam at <https://test.webrtc.org/>
- Connection to network with sufficient internet speed: at least 3 Mbps download speed and 2 Mbps upload – test internet speed at [www.speedtest.net](http://www.speedtest.net)
- Operating systems: Windows Vista or newer, Mac OS X 10.5 – or newer
- Browser with pop-up blocker disabled: Google Chrome v39 or later, Mozilla Firefox v34 or later.

Additionally, please visit and review the test-taker resource center by going to <https://www.proctoru.com/proctoru-live-resource-center>. You should expect the startup process with the proctor to take about 10-15 minutes. However, this time will not affect your exam time. Please feel free to direct any questions to the student support team via the live chat within your account.

**\*\*\*\*If you have any questions or concerns, contact Proctor U’s technical support team 24/7 via their live chat support at <https://www.proctoru.com/contact-us>**

Costs for ProctorU exams are listed below and are payable to ProctorU at the time of the test. These costs assume that a student will schedule their exam at least 72 hours in advance of the exam start time:

- 60 minutes or less - \$8
- 61 – 120 minutes - \$10
- 121 – 180 minutes - \$12

For those not scheduling an exam at least 72 hours in advance, late scheduling charges are added in addition to the above fee structure. There are two options for late scheduling:

- “Take It Soon” allows a test to be scheduled less than 72 hours but more than 24 hours before the desired start time. This option includes an additional fee of \$8.00. (Total cost for a 60 minute exam scheduled as “Take It Soon” would be \$16.)
- “Take It Now” allows a test to be taken on-demand with no appointment needed. This option includes an additional fee of \$12.00. (Total cost for a 60 minute exam scheduled as “Take It Now” would be \$20.)

These options are for the convenience of the examinee. Any charges applicable to the examinee must be paid with a credit or debit card. The test taker will be required to enter payment information on a secure page connected to a third-party card processor. The page is encrypted and secure and ProctorU does not see or store any credit card data.

Examinees will be required to re-enter payment information each time new charges are incurred.