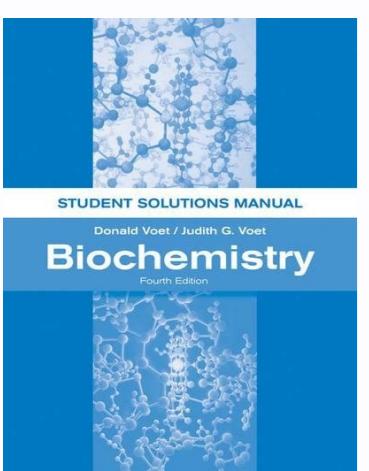
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Masaryk University

Biochemistry II

Exam Questions

Reband Ahmed & Kharum Ahmed

T4:T3 is 20:1 in blood, bound to transport protein (thyroxine-binding globulin)

A small amount is free and biologically active

T4 deiodinase to T3 when needed

Iodotyrosines are the only organic molecules in the body that contain iodine

T4 and T3 are lipophilic – cross the cell membrane easily

Thyroid-stimulating hormone regulates their synthesis at every step. It is a glycoprotein, from the anterior pituitary. It increases basal metabolism, heat generation and O₂ consumption.

PRECURSOR: thyroglobulin

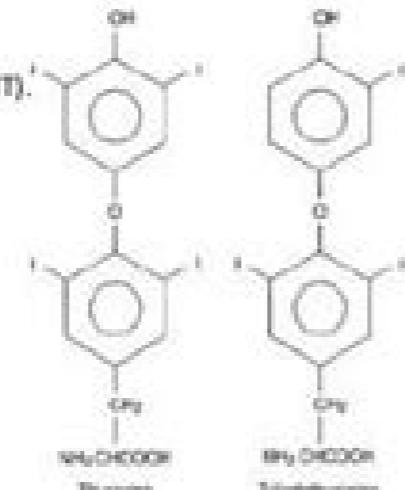
OVERVIEW: iodide anions are oxidized by thyroperoxidase (TPO) and incorporated to tyrosyl residues of thyroglobulin.

Tyrosine is converted to thyroglobulin in thyroid follicular cells.

Thyroglobulin reacts with I₂ to form monoiodotyrosine and diiodotyrosine (MIT/DIT).

Thyroxine is formed when two molecules of DIT combine.

T3 is formed when a molecule of MIT and DIT combine.

**30 Intracellular Ca²⁺ distribution - calcium channels, carriers, Ca²⁺-dependent proteins (e.g. calmodulin) and enzymes, relations to cell functions.**

Distribution:

Whole Ca²⁺ = 1-1.3kg

It is located in the bones (99%) and body fluids (ICF 0.9% ECF 0.1%)

Blood plasma concentration is (2.5mmol/l):

50% free ionized Ca²⁺ BIOLOGICALLY ACTIVE32% Ca²⁺ bound to albumin8% Ca²⁺ bound to globulins10% Ca²⁺ bound in complexes with anions CHELATEDCa²⁺ functions:

It is a bone component

Signalling substance, second messengers in transduction pathways

- cause exocytosis
- muscle contraction
- co-factors in blood coagulation

Stored in the SER, which keeps the cytoplasm levels low – good function in sarcoplasmic reticulum

- for the release and uptake, SER membranes contain signal controlled Ca²⁺ channels with energy

Dependant Ca²⁺ATPaseCa²⁺:Calmodulin:Calmodulin is a small protein found in all animal cells, which can bind 4 Ca²⁺ ions

1. Hormone binds receptor in the cell membrane

2. Via G-Proteins, this has 2 actions

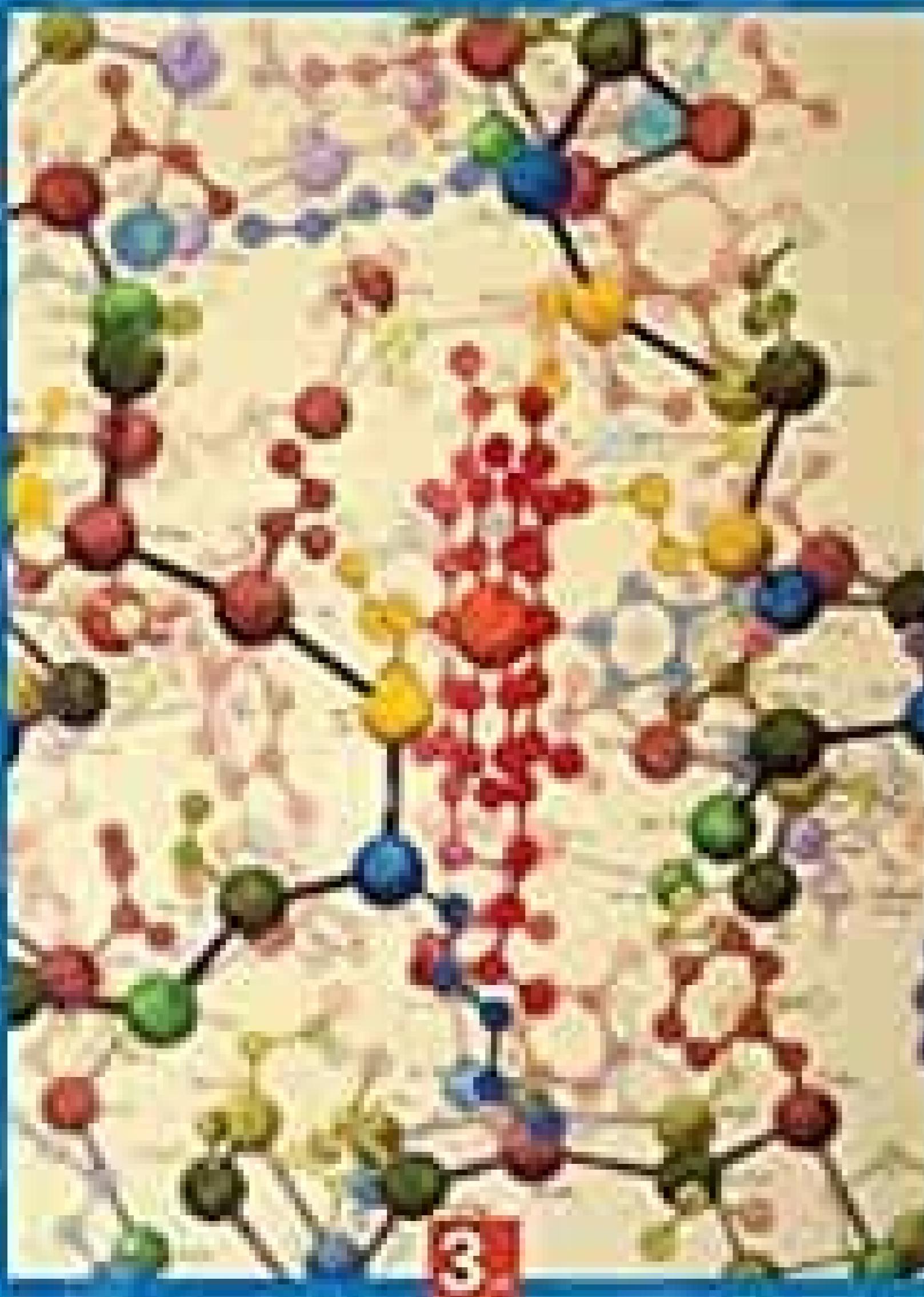
- mobilises intracellular Ca²⁺ stores

General Medicine

4th semester

2009

DONALD VOET • JUDITH G. VOET

**BIOCHEMISTRY**

46. Gel electrophoresis generally separates nucleic acids on the basis of

- A) shape.
- B) sequence.
- C) size.
- D) charge-density.
- E) none of the above

Ans: C

Section 3.4.B

Difficulty: Easy

Learning Objective: Nucleic Acid Sequencing

47. DNA sequencing using the Sanger method requires

- A) template, primer, DNA polymerase, mRNA, dNTPs, ddNTPs.
- B) template, primer, DNA polymerase, dNTPs, ddNTPs.
- C) template, primer, DNA polymerase, rRNA, dNTPs, ddNTPs.
- D) template, primer, DNA polymerase, mRNA, dNTPs.
- E) none of the above

Ans: B

Section 3.4.C

Difficulty: Moderate

Learning Objective: Nucleic Acid Sequencing

48. In Sanger dideoxy DNA sequencing, DNA polymerase I is used to add nucleotides to the _____ end of the growing polynucleotide chain.

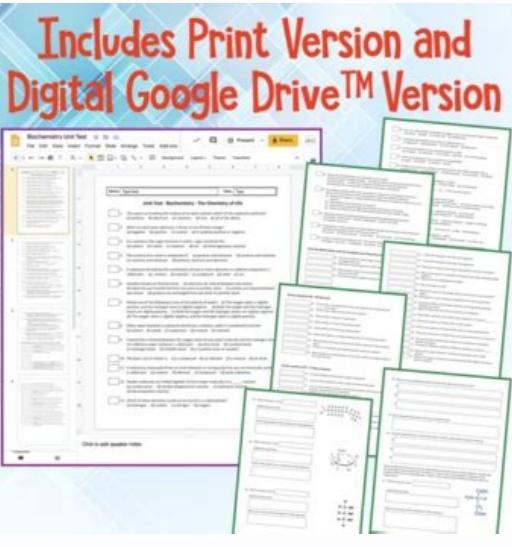
- A) sticky
- B) blunt
- C) 3'
- D) 5'
- E) dideoxynucleotide containing

Answer: C

Section 3.4.C

Difficulty: Moderate

Learning Objective: Nucleic Acid Sequencing



Voet biochemistry pdf. Voet biochemistry latest edition.

The online biochemistry course is expected to take around 15 weeks to complete, with only 4-6 hours of content scheduled for each week of the program. However, we must remember that external factors have an impact on our health just as much as, if not more than, internal factors. The content is delivered through short, interactive screencast presentations, which are followed by formative quizzes that test comprehension of the key concepts presented. To aid mastery of each topic, a variety of exercises are provided. The following topics will be covered by students enrolled in this course: What happens when we're hungry and how does it affect our bodies; How glucose is oxidized and converted into energy; What is photosynthesis, and how does it differ from our metabolism; What is diabetes, and how can it be treated at the molecular level? Everyone wants to feel better and be healthier, and taking an online biochemistry course is one of the best ways to get started. Chemicals and Health - Coursera Whatever chemical reactions and biological processes occur in our bodies have an unavoidable impact on our health. The three types are UV/Visible, Infrared (IR), and Nuclear Magnetic Resonance (NMR) spectroscopy. Finally, biochemistry is a fascinating subject! Learning more about the processes taking place all around us allows us to appreciate the world and life even more. If you own this content & believe your copyright was violated or infringed, make sure you contact us at [xscholarships@jgmail\(dot\)com](mailto:xscholarships@jgmail(dot)com) and actions will be taken immediately. This is the ideal course structure to follow for optimal learning in a complex subject like biochemistry. Enzymes, metabolic pathways, drug effects on the body, and many other topics are covered in the syllabus. If you're wondering how long it will take you to figure out such complicated concepts, you'll be relieved to learn that you won't need to be glued to the screen 24 hours a day. Enzyme kinetics, the characterization of major metabolic pathways and their interconnection into tightly regulated networks, and the manipulation of enzymes with mutations or drugs will be among the topics addressing protein function. As you progress through the course, you'll learn how to apply your knowledge of heredity and cell information flow to human health and disease and molecular biological techniques and their potential to impact our changing world. Coursera, Udemy, Skillshare, Alison, edX, YouTube, and other e-learning platforms offer these online biochemistry courses. Biochemistry online is extremely rewarding because it allows you to learn from the comfort of your own home and at your own pace. Those who are interested in learning new skills and expanding their knowledge can enroll in the course for free. However, because the class is self-paced, you may be able to complete it in half the time estimated! Now there's no need to be concerned; despite the lengthy, in-depth course, you won't have to spend all of your savings on it. It's used in a variety of industries, including agriculture and nutrition, as well as, of course, medicine. Students can also use a unique virtual spectroscopic laboratory to measure and analyze spectra online. Basics of Extracellular Vesicles - Udemy This free online biochemistry course aims to teach students the basics of extracellular vesicles (EV), including exosomes, microvesicles, microparticles, ectosomes, oncosomes, prostasomes, and many other types of extracellular vesicles. However, simply comprehending the theory may not be sufficient. This is frequently due to the subject's specificity and breadth. Biochemistry could even be considered the definition of life! To be honest, it feels like a very niche topic that only matters to those who work in the field - why should it matter to anyone who doesn't work in a lab? You might be surprised, to say the least. If we've piqued your interest in biochemistry, an online course is one of the best ways to get started. To begin with, there are numerous advantages to taking online courses. The content emphasizes not only learning but also the most effective methods of learning, resulting in a well-rounded, in-depth program. For \$149, you can get an accredited certificate as well as unlimited access to the learning materials after you've completed the program. Although the course is not the cheapest, the benefits and valuable information make it well worth the money! The following are some of the things that students will learn in this class: What mechanisms allow molecules to travel through cell membranes? How the studying methods learned in class can be applied in different real scenarios. This is the best online biochemistry course for you if you want to learn more about how to use biochemistry in your everyday life. Conclusion If you're interested in learning more about biochemistry, online biochemistry classes are good to start. Chemicals in our environments and products we use in our bodies can have long-term health consequences. What mechanisms control our metabolism? This online biochemistry course will teach you everything you need to know about the cellular level. The Secret of Life explores biochemistry, genetics, molecular biology, recombinant DNA technology, genomics, and rational medicine. This program is recommended for anyone who wants to improve their health and quality of life. Along with scientific theories, the program includes practical advice that can help you improve your life dramatically. Energy metabolism encompasses a wide range of biochemical energy conversion pathways as well as the regulatory mechanisms that govern thousands of chemical reactions. You will learn the fundamentals of energy metabolism in this free online biochemistry course. There are many resources in the course that can open up a whole new world of information about them. It discusses chemical policies and practices, including how chemicals enter our bodies (exposures), what they do inside (toxicology), how they interact with our health. Biochemistry plays an important role in medicine and nutrition, previously stated. Knowing the fundamentals of the subject can help you better understand your body and as a result, improve your overall health. Best of luck!! Frequently Asked Questions Are there any free biochemistry courses available on the internet? Free online biochemistry is available in a number of MOOCs. What exactly is biochemistry? Biochemistry focuses on understanding the chemical basis that allows biological molecules to give rise to the processes that occur within living cells and between cells, which has a lot to do with the structure and function of tissues and organs. READ ALSO: Free Accredited High School Diploma Online for Adults COPYRIGHT WARNING! Contents on this website may not be republished, reproduced, redistributed either in whole or in part without due permission or acknowledgement. Get started right away! The University of Naples Federico II, an Italian university in Napoli, offers this online biochemistry course. Despite bottlenecks and time constraints, there is a strong need to study and improve on the knowledge you already have to get the most out of the discipline. When people think about what they want to study in the future, biochemistry is rarely on the list of possibilities. These online biochemistry courses provide students with a quantitative understanding of biological molecule interactions from structural, thermodynamic, and molecular dynamics perspectives. The learning material is divided into seven main blocks of topics, each of which is covered in a separate week, to ensure that the learning process is simple and enjoyable for everyone. This creates a stress-free environment in which students can focus on learning the material. The majority of examples come from the United States. 7. Introduction to Molecular Spectroscopy - Coursera The three main spectroscopic methods used by chemists and biochemists to examine the molecular and electronic structure of atoms and molecules are introduced in this course. Biochemistry is one of the most rapidly evolving and comprehensive basic disciplines in today's life sciences. Those who take the course will learn: What are the building blocks of biochemistry, and how do they work to keep life going? How do you navigate protein structures? What role do enzymes play in our daily lives? Fortunately, this online biochemistry course is designed to do just that. Working with biochemistry necessitates a high level of critical thinking and advanced analytical abilities. It covers the course well. As you can see, knowing more about biochemistry has a lot more advantages than you might think. A set of laws governs everything in our world. So, with that in mind, let's take a look at some of the most popular online biology courses we discovered. There are many biochemistry courses available online to suit your needs and desires. They'll start by defining energy metabolism, then look at the biochemical steps involved in producing energy from glucose oxidation and glucose synthesis via photosynthesis. Furthermore, you will learn about fat metabolism as well as regulatory actions among various organs. The free Online Courses in Biochemistry focus primarily on macromolecules and cellular functions, delving deep (pun intended) into the small processes that drive large organisms. EVs' biogenesis, release, and uptake mechanisms and the various EV cargo will be covered in Module 2 (RNA, protein, lipids). ALSO CHECK OUT: Top 10 Online Elementary Schools Prior to isolating EVs, they will collect and process cell culture media and body fluids such as blood, breast milk, cerebrospinal fluid, and urine in Module 3. Furthermore, the course is instructor-paced, ensuring that every minute is spent learning something new. Differential ultracentrifugation, size exclusion chromatography, density gradient, kit-based precipitation, electron microscopy (EM), cryo-TEM, flow cytometry, atomic-force microscopy, and nanoparticle tracking analysis will all be discussed in this paper. This free online biochemistry course will give you an overview of the field's background and history and its current relevance in the life sciences. It focuses on the structure and function of various biomolecules using chemistry, physics, and biology. Each of the seven weeks contains no more than two hours of content, making it ideal for students and people with full-time jobs who want to plan ahead to get everywhere on time. So, regardless of whether you have a scientific background or not, these courses are simplified using simple language. This branch of science, which combines biology and chemistry, aids in our understanding of how various lifespans function. It covers a wide range of scientific fields, laying the groundwork for many other scientific disciplines and impacting almost every aspect of our lives. You'll learn how structural changes in some of these macromolecules affect their functions and what impact these changes have on human health. Whether you are a beginner looking for biochemistry basics or an advanced problem-solving biochemistry skill, there is always something for you. Even if you don't want to work in a lab with Petri dishes and microscopes, biochemistry is still worth studying. However, the cost is reasonable for such a high-quality program. In fact, if you have the opportunity to take the class for free! However, you will need to pay \$198 if you want access to graded assignments and final exams and are accredited for credit. The structure and function of the chemical building blocks of life, how to navigate protein structures using PyMOL, the central role of enzymes in catalyzing life's reactions, the primary metabolic pathways that power cells and much more will be covered in this 15-week self-paced course offered by Harvard University. It will also make it possible for you to take courses in cell biology, genetics, and other life science-related subjects. Biochemistry knowledge can be applied to various fields, as previously stated. Aside from the ability to learn on your own time, online learning is also much more affordable than traditional in-class education, among other advantages. Chemicals and Health is an online biochemistry course accredited by John Hopkins University and developed in collaboration with them to help us manage our health through biochemistry. This online biochemistry course examines the effects of chemicals in our environment and bodies on our health. The properties and functions of various biological molecules are discussed in structural biochemistry, particularly the three types of biological macromolecules—proteins, nucleic acids, and carbohydrates, and the structure, properties, and functions of enzymes. Completing the remaining sections of the course will provide you with a solid foundation for exploring the other two aspects of biochemistry: metabolic biochemistry and molecular biology. It covers topics like EV history, non-endocytosis, biogenesis, EV cargo, release, and uptake mechanisms, collection and processing prior to isolation, various isolation methods, characterization, and quantification techniques. This course takes students through each topic one at a time, allowing them to explore each section before moving on to the next. If biology is your passion, you might want to consider taking one of our online biochemistry courses to help you get a foot in the door. To begin with, biochemistry isn't just studied by white-coated scientists. Biochemistry is no different. Despite its intimidating appearance, there's no need to be concerned about the course. Knowing what makes your body tick can make it run more smoothly. Coursera has put together a program that will teach you everything you need to know about how chemicals and toxins affect our bodies and how we can lessen the negative consequences. Coursera, like other online learning platforms, gives users two options when it comes to paying for courses. Biochemistry is the study of the chemical processes and reactions that take place within and between living organisms. In this online biochemistry class, you'll learn about various biochemistry topics as well as how the field combines natural sciences to describe the chemical basis of living systems. In comparison to the other edX online biochemistry courses on our list, this one is the quickest. The program can be fit into even the busiest lifestyles, taking only 11 weeks and 3-6 hours of work per person to complete. Biochemistry: Biomolecules, Methods, and Mechanisms is an intermediate edX biochemistry course that will teach you everything you need to know to start a new career. The syllabus includes both theoretical and practical biochemistry material that will aid you in understanding and applying the information provided in your future endeavors.

Three multi-investigator groups that operate principally in the TB/HIV space: The South African TB Vaccine Initiative (SATVI), which includes Mark Hatherill (Director), Tom Scriba (Deputy Director) and Elisa Nemes; The Wellcome Centre for Infectious Diseases Research in Africa (CIDRI-Africa) which includes Robert Wilkinson (Director), Graeme Meintjes, Catherine Riou and Anna Coussens 24/01/2022 · Hazra is teaching UG/PG courses like Macromolecular Crystallography, Bioinformatics, Computational Biology, and Biochemistry since his joining in IITR. He has published in several peer-reviewed journals and recipient of awards like James graduate fellowship, DST-Young Scientist Award and Frontiers of Engineering from Royal Academy of ... SafeRides (free nighttime campus ride program), 217.265.RIDE (265.7433) SafeWalks (free walking escort service by Student Patrol), 217.333.1216. Student Services and Advocacy, Office of the Dean of Students, 300 Student Services Bldg., 610 E. John St., 217.333.0050. Classroom Support, Teaching Skills, and Instructional Strategies Un libro è un insieme di fogli, stampati oppure manoscritti, delle stesse dimensioni, rilegati insieme in un certo ordine e racchiusi da una copertina. Il libro è il veicolo più diffuso del sapere. L'insieme delle opere stampate, inclusi i libri, è detto letteratura. I libri sono pertanto opere letterarie. Nella biblioteconomia e scienza dell'informazione un libro è detto monografia, per ... BibMe — The Online Writing Center. Create citations. Start a new citation or manage your existing bibliographies. Check your paper. ... BibMe™ Plus 3-day free trial* Citation styles: 7000+ styles including APA & Chicago. 7000+ styles including APA & Chicago. Grammar checks. Only first 5 errors checked. Unlimited.

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