

BIOL 243 Course Profile

The course description and Winter 2019 syllabus of Biology 243, [DNA, Inheritance and Evolution](#), can be [found here](#).

Generally offered in: Winter and Summer semesters

Prerequisite(s): BIOL 241

Antirequisite(s): BIOL 243 and BIOL 205, credit for more than two of BIOL 231, 233, 241, 243 will not be allowed.

Interview with Dr. Gordan Chua

In your own words, can you give a brief summary about what this course is about?

The first half is on molecular genetics, that is the part that I teach. It essentially is learning the structure of genes and DNA. It teaches you how you go from a piece of DNA that is only an ACGT sequence to flesh and blood. Producing a phenotype is about the information flow of DNA to RNA, to protein; transcription, translation and the molecular steps involved in each of those processes. The second half focuses more on evolutionary genetics.

What is the main skill you want students to take away from this course?

To have a fundamental knowledge of molecular genetics because all of that builds up in the courses that students take later on. For example, students take BIOL 311 (Principles of Genetics) and especially if they go into CMMB, then there are a lot of genetics courses and students need to have a good grasp of this material.

What aspect of the course do you think students struggle the most with?

This course is quite heavy in content. We go into quite a bit of detail on the processes, so it is **much more detailed than high school**. Students are familiar with DNA, RNA, transcription and translation, but we go into much more detail molecularly, and there is a lot of information to know. In a way, the course is structured to have a little more "meat" to prepare students for second year and allow them to have a smoother transition into it.

The difference between BIOL 241 and 243 is that because there is a lot more material, it is even less of a good idea to cram. Students are to complete online quizzes covering material that is about to be but **has not yet been covered in lectures** rather than being presented with online quizzes for review. This forces them to do the readings ahead of time and develop good study habits, which is one of our goals. As students reach upper level courses and eventually professional school, they have to absorb a lot more information. In order to keep up, they have to develop these regular study habits.

Besides attending lectures and doing the assigned readings, what can a student do to be successful in this course?

There are many ways of studying. You go to lecture and you can listen, but then you have to go back and review the material. I'm sure people have talked about the "memory curve," where if you don't look at the material within 24 hours after, but do longer than 24 hours after, your memory of the material drops a lot. And so it is actually important to **review your notes on a regular basis**. Students run into a lot of problems if they don't look over their notes until two days before the midterm.

Besides doing the online quizzes, it is just about developing good study habits and staying on top of things. I know that can be difficult because students have a heavy workload. We also provide **learning objectives** which are quite important. They are there to guide the students as to what they should know for a given topic rather than having to memorize everything. This helps focus the studying for students.

We have **practice problems** and there is the **midterm review session** as well. I typically host a midterm review session to prepare the students. I just cover the important material from all of the topics. All students have the opportunity to attend but some find it more useful than others.

Is there a lab/tutorial component to this course? If so, how much workload can students expect from this aspect of the course?

Dr. Chua is unable to comment on this as he is not involved in the labs, however BIOL 243 has weekly, three-hour lab sessions.

What resources (textbook, lecture slides, tutorial assignments, labs) should students focus on when preparing for the examinations?

I provide notes which are **partial notes (fill in the blanks)**. Studies show that if you write something down rather than type it down, you retain more of the information. One thing that is very helpful is **having a really good set of notes**. There are many ways of successfully studying, but one way would be to cross-reference your class notes with the textbook; go back and read the textbook to fill in the blanks. Maybe there are parts that you don't quite understand as well and when you read the textbook you can understand better, so what you would do is you **supplement the notes with extra information from the textbook** that could potentially clarify a particular topic. That is one way of studying which I found works for me, but there are many other ways like using cue cards.

The readings are good in the sense that it gives you a different perspective, and sometimes as well in the notes there are a lot of **YouTube videos** so you can go back and watch those as well. The examination is **strictly on the lecture [no laboratory aspect to it, BIOL 243 has a *separate laboratory exam*]**.

Do you have any other advice for incoming students taking this class?

Come to class and listen and just keep up, as I've mentioned before.

Do you have any funny or interesting memories from your time teaching the course?

I enjoy teaching it, for the most part, and I think it's been a very pleasant experience. Nothing really

weird. Nothing out of the ordinary.

This interview transcript was edited for clarity and brevity.