# CMMB 505 Course Profile

The course description and syllabus for CMMB 505 (**Advanced Developmental Biology**) can be found here.

**Generally offered in:** Winter semester

**Prerequisite(s):** CMMB 403

**Antirequisite(s):** None

*Interview with Dr. John Cobb*

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

This course is *not* a survey of developmental biology (like CMMB 403, the prerequisite course); it is more about **exploring developmental biology literature.** Some of it is historical, and some of it is cutting edge and new discoveries. Going through these papers and learning how to break them down and critique them at a deeper level than in previous courses. Students gain an appreciation for how things used to be discovered and how they're discovered now. **It's about *how* things were accomplished, not just what was found.** Learning to critique that as well - is a finding as definitive as it sounds in a textbook?

In terms of the material, we try to cover the concepts touched on in CMMB 403 such as stem cells and HOX genes, but we look at the actual discovery of knowledge. Overall, the **material is similar to CMMB 403, but the sources and level of analysis are not.**

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

There are a variety of "soft skills" or professional skills that I would like students to develop through this course.

(1) I want students to acquire the ability to not just read, but also **dissect and critique developmental biology literature**. Look at what the papers say, how they report their findings and if their conclusions are justified.
(2) I stress writing in this course; there is not a ton of writing in terms of volume, but the **writing needs to be effective**
(3) **Oral presentations** - being able to talk about the papers we study and discuss their findings.

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

They struggle with **how to read papers.** It may sound like a basic skill, but it can be overwhelming to read a paper. Another difficulty is learning how to write effectively. **This course is not about memorization** at all - it's about understanding.

## What can students do to be successful in this course besides attending lectures?

One thing that surprises students is that you recieve a little paper to read, such as a Nature paper with just a few pages, but to be successful you need to spend a lot of time very carefully reading and analyzing the material. So **you may spend 4-5 times longer reading this paper than you would for a different text.** Ensuring that students **take the proper time for reading and writing** is critical. Some students aren't used to writing as carefully as I expect them to, so they may be shocked when they get their first paper returned.

## Does this course have a lab or tutorial component?

**There is no lab or tutorial.** There's one class where I bring in embryos, but it's not a lab.

## What do you think is the most effective way that students can prepare for an examination in the course?

This class doesn't have examinations, except a **take-home final exam, worth 20%**. They don't need to memorize anything since it is open-book, but they need to **ensure they understand all of the papers we have discussed** in class. They have about 2 weeks to do it and write about 3 pages. The class is small enough that there are no TAs, so **I read and mark all of the assignments.** Students can be surprised by how detailed my comments are on their work, but there is no disconnect between what the TAs look for and what I look for.

## Are there other resources that students can use besides the textbook and lecture notes?

There is no textbook. Having **a copy of the CMMB 403 textbook is beneficial** to use. Other than that, we use **scientific literature that is available** through open-access or the University of Calgary subscription. In writing papers, students have to look up many papers but it is accessible to all students.

## Do you have any other advice for incoming students taking CMMB 505?

1. **Don't come into this course expecting memorization** or mastering a certain amount of material. It's more about critical thinking and understanding.
2. **Come in ready to read and write** a lot more than you may be used to. It's a specific type of reading with scientific papers that may be different from what you are used to.

## Do you have any stand-out memories while teaching this course?

Students have told me that **this class is where they truly learned how to read and understand papers.** It can be painful to develop, but in terms of getting ready for further education or a career in academia, **the skill of interpreting difficult material is essential**. Some students don't get enough of that in other courses. This course is similar to a graduate course in that sense, but with the understanding that you are undergraduate students so you won't be judged as harshly. I've heard directly from students tha**t CMMB 505 can prepare you well for graduate or professional school.**

*This interview transcript was edited for clarity and brevity*