FUNCTIONAL ANATOMY
(BIOL 3425)
Department of Life Sciences
Spring 2020

A. COURSE INFORMATION

Course number/section: BIOL 3425.001
Class meeting time: MWF 08:00 am-08:50 am (Lecture)
Class location: OCNR 115
Course Website: (Island Online/Blackboard Portal) https://bb9.tamucc.edu/

Laboratory Sections
BIOL-3425.102, W 10:00 am-12:50 pm, ECMS-210
BIOL-3425.103, W 01:00 pm-03:50 pm, ECMS-210
BIOL-3425.104, W 04:00 pm-06:50 pm, ECMS-210

B. INSTRUCTOR INFORMATION

Instructor: Oleksandr Kondrachuk, MD
Office location: Tidal Hall (TH) 342
Office hours: T 3:30 pm-5:30 pm, R 9:30 am-12:30 pm or by appointment
Telephone: (361) 825-2841
e-mail: oleksandr.kondrachuk@tamucc.edu
Appointments: Preferred method is by e-mail

C. COURSE DESCRIPTION

Catalog Course Description
4 sem. hrs. (3:3) General trends in morphological development and adaptation as demonstrated by the anatomy and embryology of living and extinct chordates. Students may not receive credit for both this course and either BIOL 2401 - Anatomy and Physiology I or BIOL 2402 - Anatomy and Physiology II.

Extended Course Description
Functional Anatomy (BIOL 3425) is an upper-division, lecture-laboratory course that introduces students to the gross anatomy (i.e., anatomy of organs and organ systems) of the chordates. This course relates the form and function of “structures” (usually organs and organ systems) in various chordates. The comparative approach (with some knowledge of basic embryology, ecology, physics, and physiology) helps to elucidate many aspects of evolution, but also tends to leave the student with the impression that an organism is a collection of parts rather than an integrated whole. Students should bear in mind that natural selection acts on whole organisms, not on individual structures. Obviously, “structures” never exist in isolation, so the focus of this course helps students integrate structures into a functional whole. Functional anatomy can serve students pursuing a wide variety of careers (e.g., pre-medicine,
pre-dentistry, pre-optometry, pre-veterinary medicine, biology education, organismal biology, graduate studies in biology). Because of this, it covers a broader array of material than courses that train students for particular careers. Students—in consultation with their academic advisors—must determine whether this course is appropriate for their academic and/or career plans.

D. **PREREQUISITES AND COREQUISITES**

**Prerequisites**
BIOL 1407 (General Biology II)

**Corequisites**
In addition, each student must be registered for both lecture and laboratory sections and must attend the laboratory section for which he or she registered.

E. **REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**


**Supplies**
A laboratory coat is required for laboratory. Students may wish to buy a binder (in which to keep notes and assignments), and a set of colored pencils and/or pens. (Many students find it helpful to add color to their laboratory drawings and lecture notes.)

F. **STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes, students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, and for all components that are examined within each topic in the schedule, students should be able to:

1. correctly use scientific terminology;

2. recognize and identify structures and their components;
3. explain how structures and their components interact to perform one or more functions;

4. discuss the control mechanisms that regulate a particular structure/function, and what—in turn—that particular structure/function regulates;

5. critique basic concepts in evolutionary and functional morphology; and

6. explain the structural and/or functional bases of selected clinical conditions, dysfunctions, and disease states that help to elucidate the normal structure and function of the body by perturbing it.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Learning is more than just reading, taking notes, and memorizing. Reading and taking notes puts information in short-term memory where it is forgotten quickly unless you do something with it. Memorizing is important. However, memorization is only one step (often the first step) in the learning process. As university students, you should be able to link, combine, and synthesize the bits of data that you memorize into useful concepts. The instructors of this course will provide the students with: (1) information in the form of lectures, films, handouts, and supplemental readings; (2) specimens for hands-on examination; and (3) advice, supervision, and guidance.

In lecture, students will spend most of the course learning about functional anatomy in the context of evolution. In laboratory, students concentrate on descriptive anatomy, sometimes working individually and sometimes with one or more partners. **Students should bring the laboratory manual and handouts (if applicable) to each laboratory period.** Laboratories stress recognition, identification and comparison of organs and organ systems in representative chordates through…

- viewing and examining preserved specimens of chordates
- viewing wet and dry preparations of individual organ systems obtained from real animals
- viewing plastic models, drawings, and other artificial displays of animals and individual organ systems
- manipulating dried skeletons and skeletons mounted in plastic
- practicing dissection skills

The topics covered in lecture may not always coincide with the topics covered in laboratory. Also, be aware there can be minor differences in terminology, classification, etc., between the lecture text/lecture and lab manual (please ask your lab or lecture instructor if you are not sure about something).
H. MAJOR COURSE REQUIREMENTS AND GRADING

Your final letter grade will be based on the percentage you earn out of a possible 1000 points, which are distributed as follows:

- Lecture: 750 points (75% of final grade)
- Laboratory: 250 points (25% of final grade)

Lecture Examinations: In this course, I will give four regular lecture examinations. The four regular examinations are worth 150 points each and are sequential (i.e., each examination covers material from one specific section of the course); your lowest regular exam grade will be dropped.

The final (lecture) examination is worth 300 points and is comprehensive (i.e., covers material from the entire course).

Laboratory Practical Examinations: Two laboratory practical examinations (100 points each) will be given during the laboratory periods. The lab practicals are multiple-choice. Questions for these laboratory practical examinations will be taken from laboratory exhibits and demonstrations, and from assigned readings in the laboratory manual and handouts. Laboratory practical examinations are sequential (i.e., Laboratory Practical II is not comprehensive). The lab quizzes will comprise 50 points in total. Six lab quizzes will be given during semester (each quiz is worth 10 points). Your lab quiz grade will be the total of the 5 highest of the 6 quizzes (i.e., your lowest quiz grade will be dropped). Each lab quiz is based solely on that day’s topic (e.g., Quiz 1 is on Vertebrate Origins) and will be given at the end of the lab; questions will be taken from laboratory exhibits and demonstrations, and from assigned readings in the laboratory manual and handouts (if applicable). Therefore, you need to read the lab manuals and handouts before attending the laboratory.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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</thead>
<tbody>
<tr>
<td>Lecture Exams</td>
<td>75%</td>
</tr>
<tr>
<td>Lab Practicals and Quizzes</td>
<td>25%</td>
</tr>
</tbody>
</table>

A letter grade will be determined based on the percentage earned of total points possible, as follows:
A: 900-1000 points
B: 800-899 points
C: 700-799 points
D: 600-699 points
F: 0-599 points

I will rectify any clerical, mathematical, and/or other errors once you notify me about such errors (I always double-check everything related to your grades, but errors may still happen). However,
your legitimate course grade cannot be changed just because you “need” it (for financial aid, to get into professional school, etc.). Please be sure you earn enough points to get the grade you want. There will always be someone who just missed a D, or a C, or a B, or an A. I have to draw lines between grades, and no matter where I draw them, someone is on the wrong side. Don’t let that someone be you.

I. COURSE CONTENT/SCHEDULE

TENTATIVE LECTURE SCHEDULE:

<table>
<thead>
<tr>
<th>DAY</th>
<th>DATE</th>
<th>TOPIC</th>
<th>CHAPTERS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday</td>
<td>January 22</td>
<td>The Vertebrate Story</td>
<td>1-3</td>
</tr>
<tr>
<td>Friday</td>
<td>January 24</td>
<td>Integument</td>
<td>6</td>
</tr>
<tr>
<td>Monday</td>
<td>January 27</td>
<td>Integument</td>
<td>6</td>
</tr>
<tr>
<td>Wednesday</td>
<td>January 29</td>
<td>Integument</td>
<td>6</td>
</tr>
<tr>
<td>Friday</td>
<td>January 31</td>
<td>Integument</td>
<td>6</td>
</tr>
<tr>
<td>Monday</td>
<td>February 3</td>
<td>Integument</td>
<td>6</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 5</td>
<td>Skeletal System</td>
<td>5, 7-9</td>
</tr>
<tr>
<td>Friday</td>
<td>February 7</td>
<td>Skeletal System</td>
<td>5, 7-9</td>
</tr>
<tr>
<td>Monday</td>
<td>February 10</td>
<td>Skeletal System</td>
<td>5, 7-9</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 12</td>
<td>Skeletal System</td>
<td>5, 7-9</td>
</tr>
<tr>
<td>Friday</td>
<td>February 14</td>
<td>Skeletal System</td>
<td>5, 7-9</td>
</tr>
<tr>
<td>Monday</td>
<td>February 17</td>
<td>Lecture Examination I</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 19</td>
<td>Circulatory System</td>
<td>11</td>
</tr>
<tr>
<td>Friday</td>
<td>February 21</td>
<td>Circulatory System</td>
<td>11</td>
</tr>
<tr>
<td>Monday</td>
<td>February 24</td>
<td>Circulatory System</td>
<td>11</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 26</td>
<td>Circulatory System</td>
<td>11</td>
</tr>
<tr>
<td>Friday</td>
<td>February 28</td>
<td>Respiratory System</td>
<td>12</td>
</tr>
<tr>
<td>Monday</td>
<td>March 2</td>
<td>Respiratory System</td>
<td>12</td>
</tr>
<tr>
<td>Wednesday</td>
<td>March 4</td>
<td>Respiratory System</td>
<td>12</td>
</tr>
<tr>
<td>Friday</td>
<td>March 6</td>
<td>Respiratory System</td>
<td>12</td>
</tr>
<tr>
<td>Monday-Friday</td>
<td>March 9-13</td>
<td>Spring Break – No Classes</td>
<td></td>
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<tr>
<td>Monday</td>
<td>March 16</td>
<td>Lecture Examination II</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>March 18</td>
<td>Digestive System</td>
<td>13</td>
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<tr>
<td>Friday</td>
<td>March 20</td>
<td>Digestive System</td>
<td>13</td>
</tr>
<tr>
<td>Monday</td>
<td>March 23</td>
<td>Digestive System</td>
<td>13</td>
</tr>
<tr>
<td>Wednesday</td>
<td>March 25</td>
<td>Digestive System</td>
<td>13</td>
</tr>
<tr>
<td>Friday</td>
<td>March 27</td>
<td>Excretory System</td>
<td>14</td>
</tr>
<tr>
<td>Monday</td>
<td>March 30</td>
<td>Excretory System</td>
<td>14</td>
</tr>
<tr>
<td>Wednesday</td>
<td>April 1</td>
<td>Excretory System</td>
<td>14</td>
</tr>
<tr>
<td>Friday</td>
<td>April 3</td>
<td>Excretory System</td>
<td>14</td>
</tr>
<tr>
<td>Monday</td>
<td>April 6</td>
<td>Lecture Examination III</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>April 8</td>
<td>Nervous System</td>
<td>16</td>
</tr>
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</table>
Friday April 10 Nervous System 16
Monday April 13 Nervous System 16
Wednesday April 15 Nervous System 16
Friday April 17 Nervous System 16
Monday April 20 Nervous System 16
Wednesday April 22 Endocrine System 15
Friday April 24 Endocrine System 15
Monday April 27 Endocrine System 15
Wednesday April 29 Endocrine System 15
Friday May 1 Endocrine System 15
Monday May 4 Lecture Examination IV
Wednesday May 6 Final Exam Review
Monday May 8 Final Examination (8:00 a.m. – 10:30 a.m.)

*Chapters in Kardong (2019).

TENTATIVE LABORATORY SCHEDULE:

<table>
<thead>
<tr>
<th>DAY</th>
<th>DATE</th>
<th>TOPIC</th>
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</thead>
<tbody>
<tr>
<td>Wednesday</td>
<td>January 29</td>
<td>Laboratory 1: Integument</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 5</td>
<td>Laboratory 2: Vertebrate Origins, Quiz 1</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 12</td>
<td>Laboratory 3: Skull</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 19</td>
<td>Laboratory 4: Vertebral Column and Appendicular Skeleton, Quiz 2</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 26</td>
<td>Laboratory 5: Circulatory System, Quiz 3</td>
</tr>
<tr>
<td>Wednesday</td>
<td>March 4</td>
<td>Review for Laboratory Practical Examination I</td>
</tr>
<tr>
<td>Wednesday</td>
<td>March 18</td>
<td>Laboratory Practical Examination I</td>
</tr>
<tr>
<td>Wednesday</td>
<td>March 25</td>
<td>Laboratory 6: Viscera 1 (Fishes and Amphibians) and Preparation for Retest, Quiz 4</td>
</tr>
<tr>
<td>Wednesday</td>
<td>April 1</td>
<td>Laboratory 7: Viscera 2 (Reptiles, Birds, and Mammals), Laboratory Retest</td>
</tr>
<tr>
<td>Wednesday</td>
<td>April 8</td>
<td>Laboratory 8: Excretory System and Introduction to Histology, Quiz 5</td>
</tr>
<tr>
<td>Wednesday</td>
<td>April 15</td>
<td>Laboratory 9: Nervous System and Sensory Organs, Quiz 6</td>
</tr>
<tr>
<td>Wednesday</td>
<td>April 22</td>
<td>Review for Laboratory Practical Examination II</td>
</tr>
<tr>
<td>Wednesday</td>
<td>April 29</td>
<td>Laboratory Practical Examination II</td>
</tr>
</tbody>
</table>

Note: Changes in these course schedules may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Attendance/Tardiness
Students are expected to attend every scheduled class meeting and to be on-time. It is the
responsibility of the student to obtain any material missed during an absence from his/her classmates.

**Late Work and Make-up Exams**
Late work is not accepted for either lecture or lab work. Missed exams are excused only per TAMU-CC guidelines; such exams are given only under EXTREME circumstances. **No student is admitted to an exam after the first exam-taker has left.**

**Extra Credit**
Students should perform at their best effort throughout the semester. Individual extra credit will not be given to single students. Instructor **may** give **unannounced pop quizzes** to the class as extra credit. **NO makeups will be allowed.**

**Cell Phone Use**
Please turn off all cell phones before entering the classroom, or at least place them on silent mode.

**Laptop Use**
I have no problems with any student using a laptop in class, as long as they are not looking at pornography, anime, videos, etc.

**Food in Class**
I prefer that you not eat or drink in class, but I will not throw you out or ask you to leave.

**Missed Exams**
Missed exams are excused only per TAMU-CC guidelines; such exams are given only under EXTREME circumstances.

**Participation**
I expect that **all members** in the class will participate in the questioning, discussions, and interactions within the lecture. Formal assessment of class participation is not done as part of grade, but I do informally monitor it, and I will note it if you ask me for a letter of recommendation.

**K. COLLEGE AND UNIVERSITY POLICIES**

- **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.
- **Classroom/Professional Behavior**  
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**  
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**  
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. *Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.* Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course. Friday, April 10, 2020 is the last day to drop a class with an automatic grade of “W” this term.

- **Grade Appeals (College of Science and Engineering)**  
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the
grade appeal process, students may contact the chair or director of the appropriate
department or school, the Office of the College of Science and Engineering Dean, or the
Office of the Provost.

- **Disability Services**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that
provides comprehensive civil rights protection for persons with disabilities (please see
(ADA of 1990, plus amendments from 2008 [PL110-325]). Among other things, this
legislation requires that all students with disabilities be guaranteed a learning environment
that provides for reasonable accommodation of their disabilities. If you believe you have
a disability requiring an accommodation, please call (361) 825-5816 or visit Disability
Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access
issues in the classroom or on campus, please contact the Disability Services office for
assistance at (361) 825-5816.

[http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

If you need disability accommodations in this class, please contact the instructor as soon
as possible. Disabilities Service Office will provide me an electronic letter stating that you
are eligible for such accommodations. For either lecture or lab, if you have mobility
problems, are pregnant, or you may have a history of seizures, please notify the instructor
PRIVATELY so that assistance can be given in case of fire drills or emergencies.

- **Statement of Academic Continuity**
In the event of an unforeseen adverse event, such as a major hurricane and classes
could not be held on the campus of Texas A&M University–Corpus Christi;
this course would continue through the use of Blackboard and/or email. In addition,
the syllabus and class activities may be modified to allow continuation of the course.
Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be
operational within two days of the closing of the physical campus. However, students
need to make certain that the course instructor has a primary and a secondary means
of contacting each student.

- **Interrupted Exams**
If an exam is disrupted by situations such as weather, power outages, fire drills, or any
event requiring evacuation in the middle of an exam, those persons who have finished
their exam before the disruption will not be allowed to do a make-up exam. Those
persons who did not finish their exam will have to take an exam the first day of class
that faculty, staff and students are allowed to return to the building. Students taking
their exam with Disability Services do not have this option unless their exam is
interrupted in the building where they took their exam.

**Enrollment onto Opportunities List-Serve**
All students are on the Blackboard list serve for the course, and to a second opportunities-list serve. To subscribe, send a separate e-mail to: opportunities-list-request@listserve.tamucc.edu.

Make sure that your e-mail appears in the “From” heading. In the subject heading, type “subscribe,” then send the e-mail. Next, you will receive a second message with a long set of letters and numbers in the subject line. You must also reply to that message in order to be subscribed to the list-serve. After the initial message to subscribe, to send items on the list-serve, just type opportunities-list@listserv.tamucc.edu (do NOT add –request after list). You may not receive the messages from the list-serve if your Internet service provider (Yahoo, Hotmail, Excite, Roadrunner, Grande, etc.) keep these messages from being placed in junk-mail. The University administration prefers that you use the islander.tamucc.edu accounts. At the end of the course, send an e-mail that contains your e-mail address in the “From” heading to opportunities-list@listserve.tamucc.edu. In the subject heading, type “unsubscribe,” then send the e-mail. I hope that students will continue to subscribe to opportunities-list@listserve.tamucc.edu!

L. OTHER INFORMATION

- Academic Advising
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

- Citation format
  Please use Council of Science Editors (CSE) format—do not use APA format! A useful link on CSE format is available at this URL: http://writing.wisc.edu/Handbook/DocCSE.html

- Hints on doing well in course
  First, read the syllabus. Second, re-read the syllabus. Third, read the syllabus again.

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.