NOVA SOUTHEASTERN UNIVERSITY
College of Dental Medicine

CDM 1120 - Physiology

I. Course Information

Course: CDM 1120 - Physiology
Semester and Year: Winter 2021
Course Start and End Dates: 01/04/2021 - 04/25/2021
Course Reference Number: 31854
Semester Credit Hours: 4.0
Building and Room: Online Venue - CANVAS

II. Instructor Information

Professor: Yuri Zagvazdin
Email: yuri@nova.edu
Office Hours:
by appointment

III. Class Schedule and Location

CRN	Day	Date	Time	Location	Building/Room
31854		01/04/2021 - 04/25/2021		Programs On-line	Online Venue-CANVAS
31854	M	01/04/2021 - 01/11/2021	11:01 AM - 11:59 AM	Programs On-line	Online Venue-CANVAS
31854	T	01/05/2021 - 04/20/2021	12:10 PM - 12:59 PM	Programs On-line	Online Venue-CANVAS
31854	F	01/08/2021 - 02/26/2021	10:10 AM - 11:59 AM	Programs On-line	Online Venue-CANVAS
31854	M	01/25/2021 - 04/19/2021	11:01 AM - 11:59 AM	Programs On-line	Online Venue-CANVAS
31854	F	03/12/2021 - 04/23/2021	10:10 AM - 11:59 AM	Programs On-line	Online Venue-CANVAS

IV. Course Description

The purpose of this course is to provide the student with an understanding of the physical and chemical factors and processes responsible for the development, progression and procreation of life. The course will be presented from an organ systems approach. The areas covered will be basic cellular physiology, skeletal

muscle, the cardiovascular system, the nervous system, the renal system, the respiratory system, the gastrointestinal system and the endocrine system. Topics with direct relevance to dentistry and oral health are integrated in the content of the course. Specific examples include structural changes of the cell membranes in pemphigus vulgaris, the effect of local anesthetics on ionic current, etc. The mechanisms of relevant physiological and pathological processes and clinical conditions will be discussed.

V. Course Objectives / Learning Outcomes

Course Learning Outcomes

At the completion of this course, the student will be able to:

1. demonstrate understanding of the fundamental mechanisms of human physiology needed for advances in their profession

2. apply the conceptual knowledge of physiology in their clinical work as a part of their professional

COLLEGE OF DENTAL MEDICINE COMPETENCY STATEMENTS Faculty Note: Use the most updated version of the CDM Predoctoral Competency document to select the corresponding competencies for this course. Be sure to select the number of the competency statement and the verbatim competency statement as it appears on the competency document.For each competency indicate the type of assessment (formative or summative) that will be employed to measure the attainment of the competency

Core Competencies:

19. Graduates must be competent in the application of biomedical science knowledge in the delivery of patient care.

[CODA Predoctoral Standard 2-15]

Formative Assessments: 3 MCQ examinations (written)

Summative Assessment: Final Examination (written)

- This refers to the same as the items in the CDM Competency Document; please see them listed below.

FOUNDATION KNOWLEDGE

STATEMENTS FOR THE GENERAL DENTIST

FK1: Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure and function to the prevention, diagnosis, and management of oral disease and the promotion and maintenance of oral health.

FK1-2: Apply knowledge of structure and function of cell membranes and the mechanism of neurosynaptic transmission. (Encompasses Membrane Biology, Cell Biology, Biochemistry and Molecular Biology, Physiology, Neuroscience, etc.).

FK1-3: Apply knowledge of the mechanisms of intra and intercellular communications and their role in health and disease. (Encompasses Biochemistry, Cell Biology, etc.).

FK1-7: Apply knowledge of biological systems and their interactions to explain how the human body functions in health and disease. (Encompasses Physiology, General and Systems Pathology, etc.).

FK1-8: Apply knowledge of the principles of feedback control to explain how specific homeostatic systems maintain the internal environment and how perturbations in these systems may impact oral health. (Encompasses in Physiology, Systems Pathology, Oral Medicine, Pharmacology, etc.).

FK2: Apply knowledge of physics and chemistry to explain normal biology and pathobiology in the prevention, diagnosis, and management of oral disease and the maintenance of oral health.

FK2-1: Apply knowledge of the principles of blood gas exchange in the lung and peripheral tissue to understand how hemoglobin, oxygen, carbon dioxide and iron work together for normal cellular function. (Encompasses Physiology, Systems Pathology, Oral Medicine, Pharmacology, etc.).

VI. Materials and Resources

Course Required Texts and Materials:

Required Textbook

Berne and Levy Physiology, by B. M. Koeppen and B. A. Stanton.2018, 7th edition, Mosby Inc.

Faculty Note: Please indicate the textbooks that are **required** for the class and if available, a hyperlink to the textbook. Also, indicate if there are articles or links to **required readings** that are required for the class *and* the site where the articles are available for the student (such as: Canvas, library, database).

Course Supplemental Materials:

L.S. Costanzo. Physiology. 2018, 6th edition. Saunders Elsevier Inc.

J.E. Hall. Guyton and Hall Textbook of Medical Physiology, 2016, 13th edition. Elsevier Inc.

S.E. Mulroney, A.K. Myers. Netter's Essential Physiology. 2016, 2nd edition. Saunders Elsevier Inc.
National Board Dental Examinations. Test packets I-L and I-M released in 2005. Available at HPD library.

Silverthorn, D.U. Human Physiology. An integrated Approach. 2015, 7th edition (or older). Pearson Education
Inc.

L. S. Constanzo. BRS Physiology. 2014. 6th edition (or older), Wolters Kluwer.

- Supplemental, Recommended, Optional, NOT required.

The access to all instructional resources included in this course, such as, lectures, handouts, manuals, PowerPoint presentations, videos, photographs, pictures, articles and web links is limited to students who are enrolled in the course and is not for public distribution. The use of these instructional resources is exclusively for non-commercial and non-profit educational use. Students are recommended to download the instructional resources provided in the course, UNLESS, the course director instructs NOT to download specific files. We recommend that all students download, save, and keep the instructional materials from all the courses. These instructional resources will be very helpful references as you progress from year to year in the program.

VII. Course Schedule and Topic Outline

Course Schedule:

Dr. Zagvazdin

January

1. 04 Cell Membranes and Junctions. Cell Adhesion Disorders.
2. 05 Diffusion, Osmosis, and Molecular membrane Transport
3. 08 Ionic Equilibria and Membrane Potentials
4. 08 Graded and Action Potentials, Ionic Currents and Local Anesthetics
5. 11 Synaptic Transmission: Neuromuscular
6. 12 Synaptic Transmission: Central
7. 15 Skeletal Muscle I
8. 15 Skeletal Muscle II and Smooth Muscle
9. 19 Autonomic Nervous System I
10. 22 Autonomic Nervous System II

Dr. Schreier
11. 22 Cardiovascular Physiology I
12. 25 Cardiovascular Physiology II
13. 26 Cardiovascular Physiology III

29 UNIT I EXAM (Cell and Muscle Physiology, ANS, lectures 1-10)
February
14. 01 Cardiovascular Physiology IV
15. 02 Cardiovascular Physiology V
16. 05 Cardiovascular Physiology VI
17. 05 Cardiovascular Physiology VII
18. 08 Cardiovascular Physiology VIII

Dr. Mashukova
19. 12 Gastrointestinal System I
20. 12 Gastrointestinal System II
21. 15 Gastrointestinal System III
22. 16 Gastrointestinal System IV

19 UNIT II EXAM (Cardiovascular and GI Physiology, lectures 11-22)

Dr. Zagvazdin
23. 22 Introduction to the Respiratory System
24. 23 Lung Volumes and Mechanics
25. 26 Airway Resistance
26. 26 Lung Ventilation and Lung Perfusion

March Spring Break 03/1-03/7
27. 01 Gas Transport and Diffusion (recorded)
28. 02 Control of Breathing (recorded)
29. 05 Introduction to Renal Physiology (recorded)
30. 05 Glomerular Filtration I (recorded)

08-12 no lectures
31. 15 Glomerular Filtration II
32 16 Tubular Transport
33 19 Control of Body Fluid Osmolarity
34. 19 Control of Body Fluid Volume. Regulation of Potassium Balance
35. 22 Acid Base Metabolism
36. 23 Principles of Endocrinology
37. 26 Adrenal Cortex and Adrenal Medulla
38. 26 Thyroid Gland
39. 29 Growth Hormone and Calcium Balance
40. 30 Hypothalamus and Pituitary I

April
02 UNIT III EXAM (Respiratory and Renal Physiology, lect. 23 – 35)
41. 05 Hypothalamus and Pituitary II
42. 06 Hormones of the Pancreas
43. 09 Hearing and Balance
44. 09 Vision I
45. 12 Vision II
46. 13 Pain and Sensory Receptors
47. 16 Sensory and Motor Pathways. Reflexes,
48. 16 Taste and Olfaction

23 FINAL EXAM

Topic Outline:
Refer to Course Schedule

“Important note – Please note that due to the current Coronavirus pandemic, course schedules and course activities may be modified now and in future. Faculty and students are responsible for keeping apprised of these changes and adjusting their schedules accordingly.”

VIII. Assignments

Description of Assignments, Point Value and Rubrics

Reading assignments include lecture notes, required textbook and supplemental materials.

IX. Grading Criteria

Provide a List of all the graded work in the course (Assessments, Class Activities, Classwork and Assignments) with Point or Percentage Values, or required Completion item.

Grading Scale:

The examinations will be principally composed of multiple-choice questions. However, the lecturers reserve the right to utilize other formats.The exam questions will be deriving primarily from the material emphasized in lectures. Some questions, however, will require reading of assigned textual material. The student’s grade will be determined by the percent of correct responses given on the examinations. Grading for this course is in accordance with Nova Southeastern University College of Dental Medicine policy and Student Handbook. The passing grade is 70% or above.

Examination dates are given in the syllabus. The exams will last 2 academic hours (50-75 multiple-choice questions). Each exam will cover material primarily from specified lectures; however, some questions may require recall of information from previous lectures. **The use of calculators, cell phones and other electronic devices is prohibited during examination,** and students should not have them hidden in their pockets or elsewhere. Students are **required** to take each examination at the scheduled time.

Course Final Grade Mode for the course (Pass/Fail, PR/NPR or Letter Grade). For a continuum course, please specify the grade mode for <u>each</u> semester.

Grade Mode:

Letter Grade

Course Grading Scale

Letter Grade	GPA	Equivalence
A	4	93 to 100
A-	3.75	90 to < 93
B+	3.5	86 to < 90
B	3	83 to < 86
B-	2.75	80 to < 83
C+	2.5	76 to < 80
C	2	70 to < 76
F	0	<70

X. Course Policies

COURSE ATTENDANCE REQUIREMENTS, REMEDIATION POLICY, ALL CDM POLICIES

Attendance Policy : Please refer to appropriate pages of the NSU-CDM 2020-2021 Student Handbook.

Link to the handbook:

https://liverootnova.sharepoint.com/dentmed/Active%20Docs/Policies%20and%20Procedures/Pre%20a2020%20CDM%20PreDoctoral%20Student%20Handbook.pdf?wa=wsignin1.0

Remediation Policy: Please refer to appropriate pages of the NSU-CDM 2020-2021 Student Handbook.

“Successful completion of each CDM course requires compliance with the CDM Code of Behavioral Conduct.”

CDM College Attendance Policy Please note that, the Office of Admissions, Student Affairs and Services manages excused absences including sick days, mission trips, dental meetings, externships, interviews, family events, and other personal leave time, etc. and all student absences will continue to be tracked in axiUm. (Please refer to NSU Wide Religious Holidays Policy in the Student Handbook.) • Planned excused absences: please fill out the appropriate paperwork, with backup documentation (e.g. physician’s note), and submit on the online portal for the Office of Student Services prior to the scheduled absence, so that we can approve the leave time, and help you map out a plan to make up the work. It is the student’s responsibility to inform the course director for any courses you will be missing, your team leader for any clinic sessions that will be missed and/or the Coordinator of Extramural Programs (Dr. Mairelina Godoy), etc. of your planned absence(s). • Unplanned excused absences: please email Dr. Galka at agalka@nova.edu with a cc to cdmservices@nova.edu to report that you will be out, the reason for your absence and to also let us know if you plan to return to school the following day. You should also email the course director for any courses you will be missing, Dr. Mairelina Godoy mg1189@nova.edu for any rotations you will be missing and/or your team leader for any clinic sessions scheduled for that day. You must continue to email us daily to keep us updated if you will be out additional days and you can submit your SREA form together with backup documentation when you know the date you will return to school. • The student will be responsible for making up all missed rotations, all material presented in lectures, all laboratory projects, all written and practical examinations (including OSCEs) and must fulfill all didactic and clinical responsibilities as outlined in the individual course syllabi. Also, please review the attendance policy in the individual course syllabi. • Please do not schedule externships or interviews when you are scheduled for an examination or rotation. • Remember, it is your responsibility to reach out to our office for any unexcused absences to see if these fall under excused absences and/or to see how the unexcused absence will be managed. Also, please contact Dr. Mairelina Godoy directly to arrange makeup of any and all missed rotations, which will take place during optional clinicweeks. • Every student will be able to take 1 Personal Day/per Semester (3 Personal Days/Academic Year) with NO BACKUP DOCUMENTATION REQUIRED, provided the day(s) are not taken when you are scheduled for a rotation, written examination, practical/competency examination, OSCE or taken directly before/after a school holiday, etc. These absences will be managed through our office and designated as excused absences, provided our office is notified by email in advance or on the day of the absence. (Please indicate in the email if you will be using a personal day and designate D-1, D-2, D-3 or D-4 student.) For any additional absences to the 1 Personal Day/per semester, or in the event that you will be missing a written examination, a preclinical or clinical practical/competency examination, including an OSCE, or rotation, backup documentation WILL be required. Again, it is the student’s responsibility to notify all course directors, team leaders, and/or the Coordinator of Extramural Programs, etc. affected by your absence(s). Please check your individual schedule before requesting a personal day, to be sure that you will not be missing a rotation or an exam. A personal day will be recorded as a full day. (Half days cannot be requested.) A personal day must be requested on or before the day in question and cannot be used retroactively. **COVID-19 Protocol (subject to change)** 1. NO STUDENT IS TO COME TO SCHOOL SICK- if you do not feel right- please do NOT come to school. Email Dr. Galka- Assistant Dean for Admissions, Student Affairs and Services (agalka@nova.edu) 2. If a student has had direct/close contact with someone who has been infected with COVID-19 or is experiencing COVID-like symptoms- immediately self- isolate/quarantine. Email Dr. Galka and Dr. Schweizer- Director Infection Prevention Programs (schweize@nova.edu). a. Direct Exposure/ Asymptomatic: test on day 7- if negative test result- can come back after 10 days : if NO test- quarantine 14 days b. Symptomatic (with or without Direct Exposure): test immediately and then again on day 7- if negative test result on day 7- can come back after 10 days : NO test- quarantine 14 days and must be symptom-free for 72 hours3. If a student tests positive for COVID-19: remain self-isolated. To return to school: student needs to have 2 consecutive negative test results in a row (at least 24 hours apart). 4. Students who are in quarantine, need

to contact both Dr. Galka and Dr. Hernandez (marher@nova.edu) to determine if they can participate in online courses during this time

XI. University Policies

Academic Integrity: Cheating or inappropriate behavior during any written examination, quiz, any assignment, any project; plagiarism of any work(s), or other unethical behavior will not be tolerated; the student risks receiving a grade of zero (0) for said examination, quiz, assignment, project and may be referred to the Associate Dean for Academic Affairs and the Student Progress Committee. Please refer to appropriate pages of the NSU-CDM 2020-2021 Student Handbook. and the NSU Student Handbook located at https://liverootnova.sharepoint.com/dentmed/Active%20Docs/Policies%20and%20Procedures/Pre%20and%202020%20CDM%20PreDoctoral%20Student%20Handbook.pdf?wa=wsignin1.0 .

Plagiarism Policy: All assignments, exams, works, patient care - written, laboratory, oral, clinical must be done as the independent work of each individual student. Plagiarism, copying or sharing the work of another or altering documentation to reflect something is your own work that is not; reflect false attendance, are considered serious offences that will not be tolerated. THESE ACTIONS WILL BE CONSIDERED IN VIOLATION OF THE UNIVERSITY AND THE CDM CODE OF BEHAVIORAL CONDUCT AND WILL BE REFERRED FOR APPROPRIATE ACTION. Students who need assistance in their learning goals should communicate with the appropriate NSU-CDM course director and/or faculty. Please refer to appropriate pages of the NSU and the CDM 2020-2021 Student Handbook. Following a link to the NSU Student Handbook https://liverootnova.sharepoint.com/dentmed/Active%20Docs/Policies%20and%20Procedures/Pre%20and%202020%20CDM%20PreDoctoral%20Student%20Handbook.pdf?wa=wsignin1.0

University Policy

Class content throughout this course may be recorded in accordance with the NSU Class Recording Policy. If class content is recorded, these recordings will be made available to students registered for this course as a supplement to the classroom experience. Recordings will be made available to all students who were registered to attend the live offering of the class, regardless of a student's section or discipline, or whether the student is participating in the course online. If recordings are intended to be accessible to students or third parties who were not registered for the live offering of the class, students' personally identifiable information will be removed or redacted from the recording, unless (1) their written consent to such disclosure was previously provided, or (2) the disclosure is permissible in accordance with the Family Educational Rights and Privacy Act ("FERPA").

Students are prohibited from recording audio or video, or taking photographs in classrooms (including online classes) without prior permission from the instructor or pursuant to an approved disability accommodation, and from reproducing, sharing, or disseminating classroom recordings to individuals outside of this course. Students found engaging in such conduct will be in breach of the Student Code of Conduct and subject to disciplinary action.

Title IX/Sexual Misconduct: Sexual violence and sexual harassment are contrary to our core values and have no place at Nova Southeastern University. In accordance with Title IX and other laws, NSU prohibits discrimination, including sex-based discrimination and discrimination towards pregnant/parenting students. If you or someone you know experience(s) sexual violence and/or sexual harassment, there are resources and options available. To learn more or to report an incident, please visit the NSU Title IX website at www.nova.edu.title-ix. Please be aware that as an instructor, I am not a confidential resource, and I will need to report any incidents of sexual misconduct to the NSU Title IX Coordinator. You can also contact Laura Bennett, NSU's Title IX Coordinator directly at laura.bennett@nova.edu or 954-262-7858.