



# **Microbiology and Immunology for Nursing Students**

## **N3820a**

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## **Microbiology and Immunology for Nursing Students N3820b - Calendar description:**

The host immune response to microorganisms, the biology of microorganisms with disease-causing potential and clinical aspects of infectious diseases will be covered. The role and professional attitude of the nurse in prevention, detection and control of infections will be emphasized.

### **Course Learning Outcomes:**

After completing this course, students will be able to:

1. Describe the key elements of the human immune system
2. Explain when why and how the immunological response to infectious diseases is activated
3. Explain the mechanisms of allergic reactions, autoimmune diseases, and vaccines
4. Identify the basic structural and biological characteristics of four main types of microorganisms: bacteria, viruses, fungi, and protozoa
5. Identify the most common microbial infections in various body systems (ie HEENT, respiratory, gastrointestinal, urinary, skin, reproductive systems) including epidemiology, prevention and control of transmission
6. Describe microbial disease transmission methods and ways in which nurses can prevent transmission of infectious diseases, including infection control procedures in health care settings
7. Identify the principles of specimen collection, detection, and diagnosis of infections
8. Choose the appropriate specimen and the method of collecting

### **Competencies for entry-level Registered Nurse practice (CNO, 2019) addressed in the course:**

- 1.21 Incorporates knowledge from the health sciences, including anatomy, physiology, pathophysiology, psychopathology, pharmacology, microbiology, epidemiology, genetics, immunology, and nutrition.
- 1.22 Incorporates knowledge from nursing science, social sciences, humanities, and health-related research into plans of care.
- 1.27 Implements evidence-informed practices for infection prevention and control.
- 7.4 Advocates for health equity for all, particularly for vulnerable and/or diverse clients and populations.
- 7.5 Supports environmentally responsible practice
- 7.8 Supports healthy Public policy and principles of social justice
- 7.11 Uses knowledge of population health, determinants of health, primary health care, and health promotion to achieve health equity.
- 7.14 Uses knowledge of health disparities and inequities to optimize health outcomes for all clients.
- 9.3 Engages in self-reflection to interact from a place of cultural humility and create culturally safe environments where clients perceive respect for their unique health care practices, preferences, and decisions.
- 9.6 Uses knowledge about current and emerging community and global health care issues and trends to optimize client health outcomes.

**How we will work together:**

A tone of respect and support between and among students and faculty members, diligent preparation, and active participation will be the basis of all classes and professional practice sessions. This will lead to an environment in which student learning can flourish.

Faculty will support students in the development of the knowledge and skills necessary for professional nursing practice by asking questions, providing examples, demonstrating techniques, and leading discussions.

Students will be required to complete all the preparation activities for each class and professional practice session, and to use their knowledge from their preparation to participate fully in class and professional practice activities. All students are expected to share ideas to advance their own and others' learning, ask questions, and listen attentively. Attendance at all classes is necessary and professional practice sessions is mandatory, as are respectful interaction and the avoidance of actions that will interfere with the learning of others.

N3820A Microbiology and Immunology Topic Outline			
Week	Topic		Course Learning Outcomes
September 11 <sup>th</sup>	Orientation to course Introduction to Immune system Host pathogen interaction basics		1 & 2
September 18 <sup>th</sup>	Innate Immunity versus Adaptive Immunity		1
September 25 <sup>th</sup>	Allergies  Autoimmune diseases	Case Study #1 open with practice case study	1 & 3
October 2 <sup>nd</sup>	Vaccines		1 & 3
October 9 <sup>th</sup>	Basic Taxonomy, structure, and characteristics of Pathogens		1 - 3
<b>October 25<sup>th</sup> THIS IS A Wednesday</b>	<b>Midterm Week – ONLINE 9-11 am *Approval from Exam Central Pending*</b>		4

October 23 <sup>rd</sup>	Vector Borne Diseases	Case Study #2 open	4, 5, 6, 7, 8
October 30 <sup>th</sup>	Reading Week		
November 6 <sup>th</sup>	Microbial infections of the Upper and Lower Respiratory system	Case study #3 open	4, 5, 6, 7, 8
November 13 <sup>th</sup>	Microbial infections of the Gastrointestinal system	Case Study #4 open	
November 20 <sup>th</sup>	Microbial infections of the Genitourinary system		4, 5, 6, 7, 8
November 27 <sup>th</sup>	Microbial infections of the Dermatological system		4, 5, 6, 7, 8
December 4 <sup>th</sup>	Nosocomial infections		4, 5, 6, 7, 8

### **Required Textbooks:**

There are no required textbooks for this course. Any readings related to course content will be posted in OWL in the corresponding week.

Many students have shared that the following YouTube channels have assisted in their learning as well, however the content developed and shared by the course professor is what is considered examinable.

<https://www.youtube.com/@Medinaz>

<https://www.youtube.com/@ATPPP>

<https://www.youtube.com/@ProfessorDaveExplains>

<https://www.youtube.com/@osmosis>

### **Opportunities to Demonstrate Learning**

#### **Mid-term Exam**

**October 25<sup>th</sup> - ONLINE**

**Value 30% of the course grade**

The purpose of this exam is to provide an opportunity for the student to apply knowledge of all concepts discussed in the course to date for week 1-5 inclusive. This examination will consist of multiple choice questions and will be taken via OWL tests and quizzes with the use of Proctortrack.

#### **End of Course Exam**

**December Exam Period – IN PERSON**

**Value 40% of final course grade**

The purpose of this exam is to provide an opportunity for the student to apply knowledge of concepts discussed in the course AFTER the midterm content (ie Vector borne disease module to nosocomial infection module inclusive) This examination will consist of multiple choice questions and will be held IN PERSON.

#### **Peer-Wise Multiple choice generation and participation**

**Due by end of term (December 8 at 2355)**

**Value 10% of Final course grade (5% for question creation, 5% for question response)**

**Due: Throughout term, closes Dec 8<sup>th</sup> at 2355**

**We will be using PeerWise as a place for you to create, share and evaluate assessment questions with your classmates. *Your grade will be based on the number of questions you create – as well as your review of (and comments on) questions created by your peers.***

- You are to create 10 questions on the weekly content (any of the weeks) by the end of the

term. Each question you create is worth 0.5% up to a maximum of 5% (10 questions created totals 5%). You are to also complete 20 questions that your peers have created. Each question you respond to in Peerwise is worth 0.25% up to a maximum of 5% (20 questions created totals 5%) correct answers are not required (no penalty for incorrect questions).

For full instructions on accessing our course in Peerwise, please navigate to the *Peerwise* tab on OWL.

To access our course, "N3820a", you will need to enter two pieces of information:

- 1) Course ID = **26330**
- 2) Identifier = **Please enter your identifier for this course (Your identifier is your UWO email address including "@uwo.ca")**

### Case Studies

**Value 20% of final course grade (4 case studies worth 5% each)**

4 short answer case studies will be posted on OWL during the term at specific dates as per the syllabus. **There will be NO make up times.** Proctortrack will be used for completion, there is one attempt per student only, and the case studies are to be completed individually without the use of any aids. The case studies for each corresponding week's content will be open for TWO weeks only and close at 23:55 at the end of those two weeks.

#### *Summary of Opportunities to Demonstrate Learning in N3820*

<b>OPPORTUNITIES TO DEMONSTRATE LEARNING</b>	<b>COURSE LEARNING OUTCOMES ADDRESSED</b>	<b>VALUE</b>	<b>DUE DATE</b>
1. Mid-term Exam	1-3	30%	October 25 <sup>th</sup> 9-11 am <b>ONLINE</b>
2. Case Studies	4, 5, 6, 7, 8	20%  4 Case studies worth 5% each	Open week of Sept 25, October 23, Nov 6, and Nov 13 <sup>th</sup>  <b>*You have 2 weeks to complete each case study online*</b>
3. Peer Wise MC question participation		10%	By last day of term at 2359

4. Final Written Exam	1-8	40%	December Exam Period as determined by the registrar
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### **OWL Forum and Course Zoom Drop-Ins**

Each week you are invited to post any questions you have about the weekly lecture content by the end of the week. Everyone is invited to participate in answering questions, I will moderate and provide clarification where needed. I will have purposeful course zoom drop-in sessions at times during the course where clarification may be needed – please watch for announcements on when these will occur. These will be recorded and posted onto OWL. Otherwise individual office hours can be requested via OWL.

### **Policies**

All policies related to assignments, attendance and dress code are in the Undergraduate BScN Programs Manual on the [Nursing Undergraduate Information SharePoint site](#) and on the Fanshawe College web site in the Program manual located in the Virtual Home Room at [www.fanshaweonline.ca](http://www.fanshaweonline.ca)

Due to the significance of theoretical and practice knowledge in developing professional competence, students are expected to demonstrate professional responsibility through regular attendance at, and, participation in all scheduled learning activities. Much of the learning that takes place is a result of preparation and engagement with the material and active dialogue with colleagues and faculty. Therefore, students are expected to attend all professional practice days, including labs and praxis.

### **Attendance**

Students are expected to demonstrate professional responsibility through regular attendance at, and participation in, all scheduled learning activities as part of the development of professional competence. Much of the learning that takes place is a result of preparation and engagement with the material and active dialogue with colleagues and faculty. Therefore, students are expected to organize their schedules such that online course materials may be viewed/completed each week.

### **Technical Requirements**

Virtual drop-in sessions will be held using the video conferencing platform Zoom. Zoom is a cloud-based solution for video and audio conferencing, collaboration, and online meetings. The Zoom License is available for students, faculty, and staff at Western and its affiliated colleges. All faculty, staff and students at Western and its affiliated colleges have free access to Zoom License for all of their web conferencing needs. You will need a computer with webcam and audio capabilities, or you can use Zoom with your mobile device. Visit <https://wts.uwo.ca/zoom/index.html> for details and assistance.

### **Online Etiquette**

Some components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:



- please “arrive” to class on time
- please use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- to minimize background noise, kindly mute your microphone for the entire class until you are invited to speak, unless directed otherwise
- [suggested for classes larger than 30 students] In order to give us optimum bandwidth and web quality, please turn off your video camera for the entire class unless you are invited to speak
- [suggested for cases where video is used] please be prepared to turn your video camera off at the instructor’s request if the internet connection becomes unstable
- unless invited by your instructor, do **not** share your screen in the meeting

The course instructor will act as moderator for the class and will deal with any questions from participants. To participate please consider the following:

- if you wish to speak, use the “raise hand” function and wait for the instructor to acknowledge you before beginning your comment or question
- remember to unmute your microphone and turn on your video camera before speaking
- self-identify when speaking.
- remember to mute your mic and turn off your video camera after speaking (unless directed otherwise)

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

### **Timed Evaluations**

Tests, case studies, and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

### **Academic Accommodations vs. Academic Consideration**

*Academic accommodation* consists of formal arrangements made through Western's [Accessible Education](#) department that allow a student with a disability a fair opportunity to engage in academic activities, fulfill essential course, and program requirements.

Students request *academic consideration* through their academic advisor, for relief such as extensions, make-up dates, etc. and are required to provide their academic advisor with documentation to support their request. Students should not contact their course instructors to request academic consideration, nor should they send personal and/or health information/documentation to their instructors.

### **Scholarly Requirements**

In this program, scholarly writing is a requirement. Therefore, all scholarly papers will follow the 7<sup>th</sup> edition of the *Publication manual of the American Psychological Association* (2019), which includes guidelines for both content and format. In addition, all other writing will follow APA (7<sup>th</sup> ed.) format when citing or referring to an author's work or ideas. Failure to do so is unethical and is plagiarism.

### **Plagiarism**

Student work is expected to be original. Plagiarism is a serious academic offence and could lead to your expulsion from the nursing program. You are plagiarizing if you insert a phrase, sentence or paragraph taken directly from another author without acknowledging that the work belongs to him/her. Similarly, you are plagiarizing if you paraphrase or summarize another author's ideas without acknowledging that the ideas belong to someone else. All papers must be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University and the College for the detection of plagiarism. All papers submitted will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University, Fanshawe College, and Turnitin.com ([www.turnitin.com](http://www.turnitin.com)). For further information, please see the BScN Program Manual for the policy on plagiarism. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following web site(s):

[http://www.uwo.ca/univsec/handbook/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf).

<http://www.fanshawec.ca/sites/default/files/assets/policies/pdf/2g04.pdf>

### **Assignments and Exams**

Please refer Undergraduate Programs Manual for information on penalties for late assignments, re-grading of assignments, and the protocol for missed mid-term or final exams.

Western at [owl.uwo.ca](http://owl.uwo.ca) and Fanshawe in Virtual Home Room [www.fanshaweonline.ca](http://www.fanshaweonline.ca)

### **Electronic devices**

Electronic devices are useful in assisting with the teaching/learning process in both classroom and professional practice settings. In the classroom or praxis setting, devices should be used in a manner that is not distracting to others or oneself. In professional practice placement settings, please abide by the policies set by the agency in regards to use of social media, internet, and handheld devices. Additionally, technology use in the presence of clients or agency staff may require explanation as to its use as part of professional practice (e.g., a drug guide on a smart phone).

It is essential that client privacy and confidentiality be maintained when using electronic devices. When students and Clinical Instructors (CIs) are communicating via electronic devices, client information must not be included. Students and CIs are accountable for responsible use of electronic communication, this includes; using professional language, setting device to silent/vibrate mode in the practice setting, and refraining from personal communications when at their practice placement.

### **Mental Health**

Students who are in emotional/mental distress should refer to the following links for a complete list of options about how to obtain help.

MentalHealth@Western <http://www.uwo.ca/uwocom/mentalhealth/>  
Fanshawe College iCopeU <http://icopeu.com/fanshawe/home.html> and Counseling Services  
<http://www.fanshawec.ca/counselling/>

### **Student Safety**

Please refer to the Undergraduate Programs Manual section on Student Safety Concerns: Guidelines for Responding in the Practice Setting Environment and the Student Safety Flow Chart found on the Undergraduate Programs Site at [owl.uwo.ca](http://owl.uwo.ca) or the BScN Program Virtual Home Room on FanshaweOnline [fanshaweonline.ca](http://fanshaweonline.ca)

Students are required to read the Undergraduate BScN Programs Manual and be familiar with its contents. The Program Manual is available for Western students on OWL in the Undergraduate Student Information site (<https://owl.uwo.ca>) and for Fanshawe students at [fanshaweonline.ca](http://fanshaweonline.ca)