

COURSE SYLLABUS



Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and WSÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

TERM: Winter 2021
COURSE & SECTION: DHYG 221
COURSE TITLE: Oral Sciences 1
SECTION DETAILS: Tuesdays, 10:30am-12:20pm
INSTRUCTOR: Amber Chamut | D003 | chamuta@camosun.bc.ca
OFFICE HOURS: Please email to schedule an appointment

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

Camosun College will continue to follow the guidance of the Provincial Health Officer, the B.C. Government and WorkSafeBC, and as such may revise the delivery of courses. Courses with an approved face-to-face component may need to move to online or remote delivery if necessary.

The COVID-19 pandemic has presented many challenges, and Camosun College is committed to helping you safely complete your education. Following guidelines from the Provincial Health Officer, WorkSafe BC and the B.C. Government to ensure the health and wellbeing of students and employees Camosun College is providing you with every possible protection to keep you safe including COVID Training for students and employees, health checks, infection control protocols including sanitization of spaces, PPE and ensuring physical distancing. Please refer to: <http://camosun.ca/covid19/faq/covid-faqs-students.html> However, if you're at all uncomfortable being on campus, please share your concerns with your Instructor and if needed, alternatives will be discussed.

COURSE DESCRIPTION

In this course embryological development and the oral histology of the soft and hard tissues of the mouth and associated structures are studied in the context of health. Developmental and acquired disturbances of dental and oro-facial structures are also studied. Pathological conditions related to dental caries, and other tooth abnormalities are also examined.

<input type="checkbox"/>	Synchronous delivery: Courses will be completely online with online scheduled meetings and expectations for remote student participation. There will be meeting times but not on campus. Students will be expected to manage time zone differences for scheduled online activities.	<input type="checkbox"/>	Asynchronous delivery Courses will be completely online with no set meeting schedules. Students may participate from any time zone or anywhere in the world. All evaluation will be managed remotely.	<input checked="" type="checkbox"/>	Blended delivery: A mixed delivery of both synchronous and asynchronous.
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Course Credits: 2
 Prerequisite(s):
 Corequisite(s):
 Pre/Corequisite(s): Biol 260, DHYG 222, DHYG 231, DHYG 280, DHYG 281
 Exclusion(s):

COURSE DELIVERY

ACTIVITY	HOURS / WEEK	# OF WEEKS	ACTIVITY HOURS
Lecture			
Seminar	2	16	32
Lab / Collaborative Learning			
Supervised Field Practice			
Workplace Integrated Learning			
Online			
	TOTAL HOURS		32

Additional Delivery information:

All students to write exam during scheduled time. Final exam week is during Week 17. Time TBA

LEARNING OUTCOMES

Upon successful completion of this course, you will be able to:

- a) describe the concepts and principles of histology as they relate to the soft and hard tissues present in the oral cavity for base knowledge of structure as it relates to clinical function.
- b) discuss the embryological formation of the tissues of the body to enhance knowledge of typical and atypical dental and oral development.
- c) describe the development of dental and oral structures and their relationship to oral health and client care.
- d) describe of dental caries and other pathological conditions of the teeth and their implications for dental hygiene practice.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Fehrenbach, M.J., Herring, S.W. (2017). Illustrated anatomy of the head and neck (5th ed.). St. Louis, Missouri: Elsevier.

Fehrenback, M. & Popowics, T. (2020). Illustrated Dental Embryology, Histology, and Anatomy. 5th Ed. St. Louis: Elsevier/Saunders.

Darby M., Walsh M. (2015). Dental hygiene theory and practice. 4th Ed. St. Louis: Saunders Elsevier.

Iannucci J, Howerton L. (2017). Dental radiography principles and techniques. 5th Ed. St Louis: Elsevier.

DHYG 221 Workbook & Study Guide (2020 edition) is available through the Camosun College Bookstore.

The D2L website will be used for posting additional course information.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

ACTIVITY

1. Describe the concepts and principles of histology as they relate to the soft and hard tissues present in the oral cavity for base knowledge of structure as it relates to clinical function.

➤ Describe histological study of tissues.

- Explain histological study of tissues and identify common methods used to study dental tissues.
- Identify and discuss basic components of tissues and their appearance in histological slides.
- Explain uses for the histological study of tissues in determining dental/oral health and disease.

➤ Identify the histological features of oral mucosa.

- Recall basic knowledge of cells and tissues (biology pre-requisite).
- Describe and compare the histological structure of keratinized, parakeratinized and nonkeratinized epithelium (recall from DHYG 219).
- Describe the histological structure of the lamina propria and discuss its function.
- Describe the basement membrane and identify differences in its structure for various types and locations of oral mucosa (recall from DHYG 219).
- Compare mobile and non-mobile oral mucosa and relate structure to degree of mobility.
- Describe submucosa and differentiate structures that may be present in this component of lining, specialized and masticatory mucosa.
- Describe histologic structure of the hard palate and compare with those of the gingiva.
- Describe the histologic structure and function of the salivary glands and their distribution.

➤ Describe the histological features of the dentogingival unit and relate histological features of healthy gingiva to clinical characteristics.

- Recall knowledge of the gingiva including histology, arrangement of gingival fibers etc. (from DHYG 219).

- Describe the histological structure of the junctional epithelium and its attachment to the tooth (recall from DHYG 219).
 - Describe passive eruption and changes in the position of the epithelial attachment.
 - Describe renewal rate of gingival and junctional epithelium (recall from DHYG 219).
 - Relate histological features of healthy gingiva to its clinical appearance.
- Describe histological features of the tissues of the periodontium, other than gingiva, including periodontal ligament and alveolar bone and relate to clinical and radiographic characteristics .
- Recall structure and functions of the periodontal ligament including types and directions of periodontal ligament fibers (from DHYG 219).
 - Identify structural and cellular elements of the periodontal ligament and their function.
 - Describe the attachment of the periodontal ligament fibers to cementum and bone.
 - Discuss clinical significance of the periodontal ligament including response to injury and other clinical situations.
 - Recall knowledge of alveolar bone including types and location (from DHYG 219).
 - Describe the histologic structure of alveolar bone and explain the clinical significance of alveolar bone levels.
 - Describe bone formation and resorption and discuss reasons for their occurrence.
 - Recall fenestration and dehiscence and discuss histology and clinical significance of each.
 - Describe clinical variations of the alveolar bone, including tori.
 - Identify and describe the radiographic appearance of ankylosis and hypercementosis and relate clinical significance.
 - Explain the similarities of cementum and bone and the relationship that occurs with the periodontal ligament.
- Describe the histological features of tooth tissues including enamel, dentin, cementum and pulp.
- Recall the location, composition and macroscopic structure of enamel (from DHYG 219 and 220)
 - Describe the histological structure of enamel, including enamel rods, incremental lines, tufts, lamellae and spindles.
 - Describe the histologic structure of the dentinoenamel junction.
 - Explain the clinical importance of enamel and discuss changes that occur with wear and/or age.
 - Recall the location and composition of dentin (from DHYG 220).
 - Describe the histological structure of dentin, including predentin, the dentinal tubule, peritubular, intertubular, mantle and circumpulpal dentin, tomes granular layer and incremental lines.
 - Explain the clinical importance of dentin and describe changes that may occur with function and/or age.
 - Recall knowledge of cementum (from DHYG 219).
 - Compare histological structure and location of cellular and acellular cementum.
 - Describe and discuss age related changes that occur with cementum including resorption and repair.
 - Recall location and composition of pulp (from DHYG 219)
 - Describe the formative, sensory, nutritive, and defensive functions of the pulp.
 - Explain the clinical importance of the pulp and discuss changes that occur with trauma and/or age.
 - Describe pulp calcifications including types and etiology and discuss clinical significance.
 - Describe and identify the radiographic appearance of various pulp calcifications.

2. Discuss the embryological formation of the tissues of the body to enhance knowledge of typical and atypical dental and oral development.

- Explain formation of the primary germ layers beginning with the development of the primitive streak and identify oral tissues that will be derived from these tissue layers: ectoderm, mesoderm and endoderm.
 - Describe briefly the formation of the neural tube and the contribution of neural crest cells to facial development.
 - Describe formation of the 5 branchial arches.
 - Describe embryonic development of the face, palate, and tongue including formation and growth of processes to migration and merging or fusion of tissues.
 - Differentiate between two types of fusion that occur during embryonic development.
 - Describe in detail the formation of the following; upper lip, primary palate and palatal processes, hard palate and nasal septum.
 - Explain the origin of the thyroid gland and the pituitary gland.
 - Describe the origin and the development of orofacial cysts.
 - Identify several areas cysts may form (from embryonic tissues/structures to the adult structures of the head and neck).
 - Be aware of the various possible cleft lip and palate types and frequency of each.
 - Discuss medical treatment and the clinical significance of caring for clients with treated and untreated clefts.
 - Describe disruptions in embryonic development of the tongue that cause anomalies of the tongue and discuss clinical significance.
 - Describe other oral anomalies that may occur during development and may have an affect on clinical care such as: fordyce's granules, epithelial rests, macrostomia and microstomia.
- **Describe the development of dental and oral structures and their relationship to oral health and client care.**
- Define terms associated with development of dental hard tissues: histodifferentiation, morphodifferentiation, initiation, proliferation, apposition, calcification, odontogenesis, dentinogenesis, amelogenesis and cementogenesis.
 - Describe development of the tooth crown during the various stages of formation; the dental lamina, bud, cap and bell stages.
 - Describe the process of dentinogenesis and amelogenesis from initiation to crown completion.
 - Describe formation of the reduced enamel epithelium and the enamel cuticle, and discuss their significance.
 - Identify the relationship of the permanent to the primary tooth germs.
 - Describe development of the tooth root explaining sequencing and location of component structures; pulp, root dentin and cementum.
 - Define the terms: hertwig's epithelial root sheath (HERS), epithelial diaphragm, epithelial rests (rests of Malassez).
 - Describe the development of single versus multiple roots.
 - Describe development of the periodontal ligament identifying the orientation of fibers during the stages of eruption.
 - Describe the development of the alveolar bone and explain the relationship between bone, tooth root development and eruption.
 - Discuss various mechanisms that may be responsible for tooth eruption.
 - Describe the eruption process in the various stages (pre-eruptive, active and functional eruptive).
 - Describe the exfoliation process.
 - Recall the eruption sequence of deciduous and permanent teeth (from DHYG 220).
 - Describe abnormalities in eruption and exfoliation and their etiologies.
 - Identify radiographically stages of tooth crown and root development.

- Describe eruption factors that influence the development of occlusion.
- Recall the relationship between ideal tooth alignment and normal occlusal stresses (DHYG 220)
- Describe passive eruption and identify types of post-eruptive tooth movements and their influences on occlusion or on periodontal health.
- Describe variations in eruption including drift, migration, impaction and delayed eruption and identify clinically and recognize radiographically.

➤ **Describe histological and embryological features of the temporomandibular joint (TMJ)**

- Recall knowledge of the TMJ (from DHYG 219).
- Describe the histologic structure of the major component structures of the TMJ including the articular surfaces, disc and capsule.
- Briefly describe the embryologic development of the TMJ and identify differences between adult and the fetal TMJ.
- Explain abnormalities that may develop in the TMJ.

3. Describe dental caries and other pathological conditions of the teeth and their implications for dental hygiene practice.

➤ **Explain dental caries**

- Describe dental caries epidemiologically, as a chronic, infectious disease.
- Describe etiological factors of dental caries and their inter-relationship.
- Describe the oral ecology and the role of specific microorganisms in the development of caries (recall microorganisms from Biol 160).
- Describe demineralization as the accepted theory of cariogenesis.
- Describe the types of foods most often associated with caries.
- Draw a diagram illustrating the interaction of sucrose and bacteria in the oral cavity over time (Stephan curve).
- Describe the susceptibility of tooth surfaces and factors that affect their resistance.
- Describe the protective mechanisms of saliva and the effect of lack of this resource.
- Describe the pathological development, clinical characteristics and morphology of plaque associated with pit and fissure caries, smooth surface caries and cementum caries (root surface caries).
- Recall protective mechanisms of the dentin including sclerotic and reparative dentin.
- Define types of caries including chronic, acute and arrested.
- Describe the clinical signs and symptoms of caries.
- Identify on images, obvious clinical signs of various types of caries.
- Recall microbiological tests used to assess or monitor caries activity (Biol 160) and discuss uses in clinical dental hygiene.
- Describe preventive and restorative approaches to dental caries.

➤ **Describe and interpret the radiographic appearance of dental caries.**

- Describe the limitations of using radiographs to diagnose dental caries.
- Describe conditions or effects that imitate caries on radiographs including their appearance and significance.
- Describe the radiographic appearance of all types and stages of dental caries.

➤ **Describe the development of dental and oro-facial anomalies, including acquired disturbances and discuss their relationship to dental health and client care.**

- Identify clinical concerns or abnormalities in crown formation related to the development of dental tissues.
- Describe the etiology, characteristics and significance of enamel and dentin hypoplasias and hypocalcification including dysplasias.
- Explain abnormalities in root formation including enamel pearls, extra roots, dilaceration, concrescence, and root resorption (recall DHYG 220).
- Describe and differentiate characteristics of acquired tooth abnormalities in terms of etiology, diagnosis, clinical features and treatment of the following: attrition, abrasion, erosion, and abfraction.
- Identify on photographs and radiographs developmental and acquired abnormalities of dental structures

STUDENT EVALUATION

NOTE: minimum passing grade for this course is B- or 70%

DESCRIPTION		WEIGHTING
Tests	Test 1	25%
	Test 2	25%
	Quizzes	10%
Final Exam		40%
If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. If you wish to dispute a final grade you have received, please refer to the Grade Appeal Policy .		TOTAL 100%

SCHOOL, DEPARTMENT, OR PROGRAM PROCEDURES, REQUIREMENTS, AND STANDARDS

More information available on D2L

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/services/>.

Academic Advising	http://camosun.ca/services/academic-advising/
Accessible Learning	http://camosun.ca/services/accessible-learning/
Counselling	http://camosun.ca/services/counselling-centre/
D2L Support	desupport@camosun.ca
Financial Aid and Awards	http://camosun.ca/services/financial-aid/
Help Centres (Math/English/Science)	http://camosun.ca/services/help-centres/
Indigenous Student Support	http://camosun.ca/learn/school/indigenous-education-community-connections/
International Student Support	http://camosun.ca/international/

Learning Skills	http://camosun.ca/services/writing-centre/learning-skills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/services/student-support/
Ombuds	http://camosun.ca/about/ombudsman/
Registration	http://camosun.ca/services/registration/
Technology Support	http://camosun.ca/services/its/
Writing Centre	http://camosun.ca/services/writing-centre/

If you have an urgent mental health concern, please contact **Counselling**. Urgent counselling sessions are available daily at both campuses during business hours. If you have an emergency or need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

STATEMENTS: POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

COLLEGE-WIDE POLICIES

Academic Accommodations for Students with Disabilities

The College is also committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, anxiety, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs and create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate accommodations you need without disclosing your diagnosis or condition to course instructors. If you need to request academic accommodations, you can contact CAL at: accessible@camosun.ca or by phone at 250-370-3312 (Lansdowne) or 250-370-4049 (Interurban). Visit <http://camosun.ca/services/accessible-learning/> for more information.

Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

Student Code of Conduct (Academic and Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Conduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

CHAIR REVIEW DATE: Dec 17, 2020

TEMPLATE VERSION: 2020.1

Changes to this Course Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.