CAMOSUN COLLEGE
School of Health & Human Services
Dental Hygiene Department

DHYG 121
Winter, 2009

COURSE OUTLINE

The Approved Course Description is available on the web @ http://www.camosun.bc.ca/calendar/current/web/dhyg.html#DHYG121

Ω *Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records.*

1. Instructor Information

(a) Instructor Lynne Viczko
(b) Office hours by appointment
(c) Location Rm 002, Dental Bldg
(d) Phone 250 370-3192 **Alternative:**
(e) E-mail viczkol@camosun.bc.ca
(f) Website

2. Intended Learning Outcomes

Upon completion of this course the student will be able to:

- Understand 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.
- Identify the sequence and discuss the embryological formation of the tissues of the body and have a good understanding of how the dental and oral structures develop in order to identify their relationship to dental health and client care.
- This foundation will also provide you with base knowledge required for further study in the dental sciences.

Critical Elements

1. Describe the concepts and principles of histology as they relate to dental and oro-facial structures.

   - 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

2. 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.
    - 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.
    - Compare mobile and non-mobile oral mucosa and relate structure to degree of mobility.
    - Describe submucosa and differentiate structures that may be present in lining, specialized and masticatory mucosa.
    - Describe the histologic structure and function of the salivary glands and their distribution
    - Identify the location of lining, masticatory and specialized mucosa and compare the histology of each.
    - 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

3. Describe the histological features of the dentogingival unit and relate histological features of healthy gingiva to clinical appearance.

    - Recall knowledge of the gingiva (from fall science courses)
    - Recall histology of gingiva (oral mucosa)
    - Describe the histological structure of the junctional epithelium and its attachment to the tooth.
    - Describe passive eruption and changes in the position of the epithelial attachment
    - Describe renewal rate of gingival and junctional epithelium
    - Recall the arrangement of the gingival fibers (from fall science courses)
    - Relate histological features of healthy gingiva to its clinical appearance

4. Describe histological features of the tissues of the periodontium, other than gingiva, including; periodontal ligament, alveolar bone and cementum

    - Recall structure and function of the periodontal ligament including types and directions of periodontal ligament fibers (from fall science courses)
    - Identify structural and cellular elements of the periodontal ligament and their function
    - Describe the attachment of the periodontal ligament fibers to cementum and bone
    - Describe the physical, formative, nutritional and sensory functions of the periodontal ligament
    - Discuss clinical significance of the periodontal ligament including response to injury and other clinical situations
    - Recall knowledge of alveolar bone (from fall science courses)
    - 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
    - Recall knowledge of cementum (from fall science courses)

- Compare histological structure and location of cellular and acellular cementum
- Describe cementum resorption and repair and discuss possible changes that occur with age
- Explain the clinical importance of cementum and describe the similarities with bone and the relationship occurs with the periodontal ligament

5. Describe the histological features of tooth tissues (except cementum), including enamel, dentin and pulp

    - Recall the location, composition and macroscopic structure of enamel (from fall science couses)
    - 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 fall science courses)
    - Describe the histological structure of dentin, including;predentin, the dentinal tubule , peritubular, intertubular, mantle & circumpulpal dentin, tomes granular layer & incremental lines within dentin
    - Explain the clinical importance of dentin and describe changes that may occur with function and/or age
    - Recall location and composition of pulp (from fall science courses)
    - 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.

6. Discuss human embryological development and describe the formation of the oro-facial structures identifying their relationship to dental health and client care.

    - Recall knowledge of fertilization and early cell division (from BIOL prerequisite)
    - 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 development of the thyroid gland and the origin of the pituitary gland

7. Describe the embryonic development of dental tissues and associated structures.

    - Define terms associated with development of dental hard tissues: histodifferentiation, morphodifferentiation, initiation, proliferation, apposition, calcification, odontogenesis, dentinogenesis, amelogenesis and cementogenesis
    - Describe development of the dental lamina and formation of the tooth buds

- Describe development of the tooth crown during the various stages of formation; the 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
- Identify clinical concerns or abnormalities in crown formation related to the development of dental tissues
- Describe development of the tooth root explaining sequencing and location of component structures; pulp, root dentin and cementum
- Define terms: hertwig's epithelial root sheath, epithelial diaphragm, epithelial rests (rests of malassez)
- Describe the development of single vs. Multiple roots
- Explain abnormalities in root formation including enamel pearls, extra roots, dilaceration and accessory canals
- 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 (fall science courses)
- Describe abnormalities in eruption and exfoliation and their etiologies
- Describe eruption factors that influence the development of occlusion
- Recall the relationship between ideal tooth alignment and normal occlusal stresses (fall science courses)
- Describe passive eruption and identify types of post-eruptive tooth movements and their influences on occlusion or on periodontal health

8. Describe the development of oro-facial anomalies and discuss their relationship to dental health and client care.

   - Describe the origin of and the development of 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
   - Describe disruptions in the fusion (migration) process that contribute to lack of fusion
   - 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 bifid tongue, macroglossia, microglossia and aglossia 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 (spots), epithelial rests, macrostomia and microstomia.

9. Describe histological and embryological features of the temporomandibular joint (TMJ)

   - Recall knowledge of the TMJ (from fall science courses)
   - 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 could develop in the TMJ

3. Required Materials

(a) **Main text**: Illustrated Dental Embryology, Histology, and Anatomy 2nd Ed., Bath-Balogh, Mary and Fehrenbach, Margaret J. Philadelphia; W.B.Saunders Company, 2006

Illustrated Anatomy of the Head and Neck 3rd Ed., Fehrenbach, Margaret J. and Herring Susan W. Philadelphia; :W.B. Saunders Company, 2007

* Other
DHYG 121 Workbook & Study Guide, 2009 version available at Camosun College Bookstore

4. Course Content and Schedule

Class hours will consist of two consecutive fifty- minute time periods held once per week. Please see the timetable. The weekly schedule of topics, details of assignments and dates of term tests will be provided in the first week of class.

5. Basis of Student Assessment (Weighting)

(a) Assignments: none

(b) Quizzes: 15-20%

(c) Exams
Midterm – 40-45% Final - 40 -45 %. Evaluation will be further discussed the first week of class. Specific % for quizzes and exams are tentative and may change as will be discussed in class.

(d) Other (e.g. Project, Attendance, Group Work)

6. Grading System

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[X] Standard Grading System (GPA)

[ ] Competency Based Grading System

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College Calendar, Student Services or the College web site at http://www.camosun.bc.ca

STUDENT CONDUCT POLICY

There is a Student Conduct Policy. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section.
http://www.camosun.bc.ca/policies/policies.html

A. GRADING SYSTEMS *http://www.camosun.bc.ca/policies/policies.php*

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-	***PASSING GRADE***	4
65-69	C+	Minimum level has not been achieved.	3
60-64	C		2
50-59	D		1
0-49	F		0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at http://www.camosun.bc.ca/policies/E-1.5.pdf for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.

CW	*Compulsory Withdrawal*: A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.