Course Title: Anatomic Science for the Dental Hygienist I
Course Number: DHY 101
Course Credit: 3cr.

Semester Analysis: 15 weeks of Classes
Placement: First year, first semester in Dental Hygiene Curriculum
Pre-requisites: Current CPR Certification; BIO203 & 204; MAT 124; ENG101; PER130
Co-requisite: BIO205; DHY102; DHY103

Faculty: Jane Doe
Office number: (978) 630-9415 or Secretary (978) 630-9413
Instructor available during office hours (posted on door) and by appointment
E-mail: @mwcc.mass.edu

Course Description:
This course will introduce the student to the anatomy and histology of each tooth and all structures of the oral cavity. Learning opportunities will be offered in the form of lecture and demonstration, with the aid of anatomical models and extracted teeth so that the student will be prepared to identify individual structures of the mouth in preparation of clinical experience. The student will draw extensively on prior learning from principles associated with Anatomy and Physiology. Additionally, Microbiology will be taken either prior or concurrently and provide a framework for analysis within the scope of oral hygiene, tissues and structure.

Histology and embryology of the oral tissues and face, anatomy of the head and neck, tooth morphology, development and function, and individual tooth identification and morphology of the primary and permanent dentition will be covered. This course gives the dental hygiene student the basic anatomical knowledge to utilize in the clinical component of the program.

The general education and program competencies for this course that will be met areas follows:

MWCC General Education Competencies addressed in this course:
1. Competence in written and oral communication in English
2. Competence in quantitative reasoning and scientific modes of inquiry
3. Competence in information literacy

Leveled Program Competencies for Semester I:
(*indicates those competencies addressed in this course)
The student will:
1. Communicate with guidance through written and electronic means.
2. Demonstrate basic application of theory in the pre-clinic setting.
3. Implement a basic plan of care for an individual, utilizing appropriate assessment skills.
4. Implement a model of a basic education plan with guidance for an individual patient.
5. Identify the role of the dental hygienist and demonstrate an understanding of this role in the pre-clinic setting.
6. Demonstrate a commitment to learning by successfully identifying self learning needs and applying the knowledge learned to the role of the hygienist in the pre-clinic setting.

**Course Objectives By Unit:**
Upon completion of this course the student will accomplish the following objectives.

**Unit I: Introduction to the Orofacial Region & Dentition:**
1. Identify the major structures/landmarks of the orofacial region.
2. Name the major salivary glands & their approximate locations.
3. Identify the key features/landmarks of the oral cavity.
4. Identify the key features/landmarks of the jaws & alveolar processes.
5. Identify the regions of the gingival.
6. Differentiate the hard from the soft palate.
7. Identify the regions & papillae of the tongue.
8. Given a tooth (primary or permanent dentition), identify it via the Universal, Palmar or ISO system.
10. Identify the uvula on a diagram and lab partner.
11. Identify all teeth from each dentition by name & function.
12. Identify the divisions of a tooth.
13. Differentiate the anatomical from the clinical crown.
14. Identify the surfaces of the teeth.
15. Define and identify an embrasure.
16. Identify the location & function of:
   - Enamel
   - Cementum
   - Dentin
   - Pulp
17. Identify & locate the periodontium.

**Unit II: Dental Anatomy:**
1. Identify the functions of each tooth type (both dentitions).
2. Identify the root axis line (RAL) for each tooth.
3. Define and identify the following terms: interproximal space, contact area, height of contour.
4. Define and identify a ling angle (LA)? Identify the line angles for the anterior & posterior teeth.
5. Define and identify a point angle (PA)? Identify the point angles for anterior & posterior teeth.
6. Define and identify the following common features of anterior permanent teeth:
   - Fossae
   - Ridges (incisal, marginal)
   - Cingulum
   - Root depressions/furrows/concavities
   - Pits
   - Mamellons
   - Incisal angles
   - Incisal ridge
   - Height of contour
7. For each permanent tooth (anterior & posterior) identify the following:
   - Eruption date
   - Root completion date
   - General/specific crown features
   - Height of contour
   - Distinguishing right from left
   - General/specific root features

8. Define and identify the following common features of posterior teeth:
   - Ridges (marginal, transverse, oblique, cusps)
   - Fossae
   - Grooves
   - Pits
   - Occlusal table

9. If given a single tooth, identify it by dentition, arch, type of tooth & right vs. left?
10. Define and identify an interproximal space?
11. For all primary teeth identify:
   - Eruption date
   - Root completion date
   - Shedding dates

12. Compare/contrast primary vs. permanent teeth.
13. Discuss the importance of primary teeth.
14. Identify the distinguishing characteristics of the primary teeth.
15. Identify the following:
   - Dens in dente
   - Hutchinson’s incisors
   - Talon cusp
   - Supernumerary teeth aka mesiodens
   - Microdontia
   - Peg lateral
   - Anodontia
   - Tubercles
   - Dilaceration
   - Impaction
   - Dentigerous cyst
   - Mulberry molars
   - Enamel pearl
   - Root fusion
   - Concrescence
   - Peg 3rd molar

**Unit III: Orofacial Embryology:**
1. Identify the periods of prenatal development (preimplantation, embryonic, fetal).
2. Identify the 5 embryonic period processes (induction, proliferation, etc).
3. Identify the 3 germ layers & the tissues each becomes.
4. Identify neural crest cells and their importance to normal oral embryologic development.
5. For the following embryonic structures, identify their origin & future tissue that they develop into:
   - Stomodeum
   - Mandibular arch
   - Frontonasal process
Nasal pits
Medial & lateral nasal processes
Maxillary processes

6. For each branchial arch, identify it by name (if applicable), its cartilage, nerve, & muscle components:
   1st
   2nd
   3rd
   4-6

7. Identify the major events/steps in palatal development.
8. Identify the landmarks of the adult palate.
9. Identify the major events/steps in nasal cavity & septum development.
10. Identify the major events/steps in tongue development.
11. Identify the stages of odontogenesis (tooth development).
12. Identify the importance of the basement membrane.
13. Define the primordium of the tooth.
14. Identify the stages/steps in root development.
15. Define an epithelial rest of Malassez.
16. Identify the stages of active tooth eruption.
17. Identify the following:
   Cleft lip
   Cleft palate
   Anodontia
   Supernumerary teeth
   Macro/microdontia
   Dens in dente
   Fusion
   Tubercles
   Enamel pearl
   Enamel dysplasia
   Concrescence
   Dilaceration

Unit IV: Oral Histology:
1. Identify the 2 types of intercellular junctions: desmosome & hemidesmosome.
2. Define and identify the expected location of the 3 types of oral mucosa: lining, masticatory & specialized.
3. Identify the significance of Fordyce spots.
4. Identify the significance of keratin.
5. Define and identify the location of the lamina propria.
6. For each of the following regions, identify the type of oral mucosa present:
   Labial & buccal mucosa
   Alveolar mucosa
   Floor of mouth
   Ventral tongue
   Soft palate
   Hard palate
   Attached gingival
   Dorsal surface tongue
7. Identify the turnover times for skin, junctional epithelium, ginigiva, buccal/labial mucosa.
8. Define and identify the expected location of the col.
9. Identify the size (average) of the gingival sulcus.
10. Define and identify the location of the epithelial attachment.
11. Identify the general composition & function of saliva.
12. Identify on a diagram and lab partner the location of the major tonsils.
13. Identify on a diagram and lab partner the location of the major sinuses.
14. For each of the following dental tissues (enamel, dentin, cementum, pulp, alveolar bone) review:
   - Overall functions
   - Composition
   - Matrix
   - Cells secreting matrix
15. Define and identify the line of Retzius.
16. Define and identify the neonatal line.
17. Identify the importance of Ca10(PO4)6(OH)2.
18. Define and identify a dentinal tubule.
20. Identify the various landmarks of the pulp.
21. Define and identify the significance of Sharpey’s fibers.
22. Review the 3 potential CEJ patterns.
23. Identify the 2 types of cementum: cellular & acellular.
24. Differentiate alveolar from basilar bone.
25. Identify the alveolar crest?
26. Identify the interdental septum, interradicular septum, & the lamina dura.
27. Review the location, functions, & principle fibers of the PDL.
28. Review the interdental ligament.
29. Identify the following:
    - Hyperkeratinization
    - Dentin hypersensitivity
    - Geographic tongue
    - Pulp stones
    - Black hairy tongue
    - Hypercementosis
    - Gingival recession
    - Edentulous dentition
    - Gingivitis
    - Goiter
    - Periodontitis
    - Nasmyth’s membrane
    - Xerostomia
    - Attrition
    - Nicotinic stomatitis
    - Erosion
    - Abraction
    - Abrasion
Learning Experiences:
Each week the student will be presented with an outline of learning experiences that will match the scheduled topic outline that was submitted in the first year curriculum coursework. These learning experiences will provide the student with more scope and depth to each topic presented. The learning strategies employed will educate the student to a level of knowledge which will allow for competence in analyzing, evaluating, appreciating and correlating dental science material with clinical practice. The format of instruction will be the lecture, slides and examination of head and neck and tooth models.

Teaching Methods:
*Lecture & class discussion
*Handouts
*Textbook Assignments
*Written Examinations
*PowerPoint Presentations
*Individual & group projects/demonstrations
*Model examination
*Weekly Quizzes

Methods of Evaluation:
Grades on assignments and exams must average C+ = 77% or above.
The specific evaluation procedures will be based on the following:
Attendance (see policy below)
Completion of assignments
Successful passing of quizzes & examinations

Evaluation Methods:
- Quizzes & Assignments 25%
- Final 25%
- Interim Exams (6) 50%

Attendance Policy:
Attendance is required at all lectures and lab experiences. Absence may adversely affect the class and clinical participation portion of the final grade. Students should notify the instructor prior to class if they are unable to attend. Students are responsible for all class materials and activities regardless of absence. All work is due on date assigned; any missed exam must be made up prior to the next class meeting. Punctuality is expected. Quizzes given at the start of class will not be allowed to be made up if missed due to tardiness. On exam days, students will not be allowed extra time to finish their exam if they arrive late. Allowances will be made in the event of adverse weather.

Textbooks:
(*Required)

Reference Textbooks:
**Statement on Disabilities:**
If you have a disability, a medical or emotional issue that might impact on your class performance, please consult with me in the privacy of my office so that the college may provide the required and appropriate accommodations for you. It is most beneficial if the disclosure is made early in the semester. This could include learning disabilities, brain injury, and hearing impairments, etc., just to name a few.

Student with documented disabilities who believe that they may need accommodations in this class are encouraged to contact the Counselor for Students with Disabilities, in Room 135, (978) 630-9120, as soon as possible to ensure that such accommodations are implemented in a timely fashion.

In addition to the instructor, the college employs other staff to which you may go to for support. They are:
- Nancy Kennedy, Director of Counseling, Room 141B
- Diane King, College Nurse/Health Educator, the Health and Wellness Office, Rm. 133

**Plagiarism:**
Plagiarism on any assignment will result in a grade of 0. If plagiarism is identified, a conference will be scheduled with the student and the instructor. The student may have one chance to re-write the assignment, based on the discretion of the instructor. Faculty will review written assignments for plagiarism on Blackboard through “Safe-Assign.” Students may seek help in the writing labs at the Gardner Campus, if needed, with written assignments.

**Policies and Procedures:**
This course follows all policies and procedures listed in the MWCC Dental Hygiene Student Handbook 2010-2011.
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