Course Description:

This course is designed to teach the dental student how to identify orthodontic problems in children and adults, and how to appropriately manage these problems by referral, observation or treatment. The laboratory component of this course will prepare the student to fabricate and activate specific types of orthodontic appliances which are suitable for use in the general practice.

I. General Information

Course Director:

Course Director: Divakar Karanth
Office: D7-19D
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Phone: (352) 273-5693
Course Credits: 1
Semester: Summer

Contributing Faculty

Calogero Dolce (352) 273-7960 CDOLCE@dental.ufl.edu
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II. Course Goals

The goal of this course is to enhance your foundation knowledge in facial growth and development and assist you in applying the skills you will need to recognize developing malocclusions; to communicate finding to patients and other professionals; to understand how orthodontics can enhance prosthetic, endodontic, and periodontal treatment; and, to have a basic understanding of orthodontic diagnosis and treatment. Also, the student will recognize occlusal problems, which are suitable for treatment in a general practice, as well as severe occlusal problems requiring complex orthodontic and/or orthognathic surgical treatments that should be referred.

III. Course Overview

Course instruction will be accomplished through lectures and laboratory sessions. The student is expected to read the assigned reading before lectures.

LECTURES:

Lectures are designed to direct the student’s reading and to emphasize materials of primary importance. Generally, lectures provide overall concepts and the student will need to consult their reference text(s) for specific details.

LABORATORY:

The laboratory sessions will provide hand-on experience in: analyzing placing orthodontic brackets and archwires.

IV. Course Outline
A. LECTURES

1. Classification of Malocclusion
2. Growth of Craniofacial Skeleton
   1. Changing concepts and hypotheses of craniofacial growth
   2. Controlling factors in craniofacial growth
   3. Regional development
   4. Overall pattern of craniofacial growth
   5. Racial and ethnic differences
   6. "Adult" craniofacial growth
3. Dentition changes
   1. Change from primary dentition to mixed dentition to permanent dentition
   2. Review of dental development
4. Biological Response to Orthodontic Treatment
   1. Histological response
   2. Craniofacial/dental response
5. Comprehensive Orthodontic Treatment for Adolescents and Adults: an overview
6. Multidisciplinary Approach to Orthodontics
   1. Prosthodontics
   2. Periodontics
   3. Endodontics
   4. Adult adjunctive treatment
   5. Treatment possibilities and limitations
7. Brackets and Archwires
8. Biomechanics and fixed appliances
9. Orthodontic decision-making
10. Cephalometrics
11. Sagittal-Horizontal treatment
12. Transverse treatment (Crossbites)
13. Vertical treatment (Deep and Open bites)
14. Possibilities with clear aligner therapy (Invisalign)
15. Orthognathic Surgery
16. Retention and Stability

B. LABORATORY

1. Bracket and archwire placement

V. Course Material

Required Text
VI. Course Objectives

LEARNING OBJECTIVES

1. Classification of Malocclusion
   1. Describe Angle Classification
   2. Describe the Ackerman Proffit analysis
   3. Describe the importance of CR, CO, Maximum intercuspation jaw positions

2. Growth of Craniofacial Skeleton
   1. Describe the changing concepts and hypotheses of craniofacial growth.
   2. List the controlling factors in craniofacial growth
   3. Describe regional development
   4. Identify overall patterns of craniofacial growth
   5. Describe racial and ethnic differences
   6. Describe "adult" craniofacial growth

3. Dentition changes (from primary dentition to mixed dentition to permanent dentition)
1. Describe the development of the dentition, eruption, jaw relationships, changes and problems related to dental transitions from, age 5 years to 12 years

4. Biological Response of orthodontic tooth movement

   1. Describe the histological response in orthodontic tooth movement
   2. Describe the craniofacial/dental response in orthodontic tooth movement

5. Comprehensive Orthodontic Treatment for Adolescents and Adults: an overview

   1. Discuss when to start orthodontic treatment
   2. Describe the three stages of orthodontic fixed appliance treatment:
      - Alignment and leveling
      - Molar correction and space closure
      - Finishing
   3. Discuss why separation is necessary before banding.
   4. List the clinical steps involved in direct bonding of orthodontic brackets and explain the importance of correct execution of each step

6. Multidisciplinary Approach to Orthodontics: Prosthetics; perio; endo; adult adjunctive treatment; treatment possibilities and limitations

   1. Discuss the indications of treating patient's in need of molar uprighting, extrusion, de-rotations and crossbites
   2. Discuss the clinical management of a patient treated with fixed or removable or removable appliances (consider activation and anchorage)
   3. Discuss management of missing, unerupted and supernumerary teeth

7. Brackets and Archwires

   1. Describe Brackets and built in features of preadjusted edgewise appliance
   2. Describe types of archwires and their clinical use in various stages of treatment

8. Biomechanics and Fixed appliances
1. List and describe five types of tooth movement

2. Explain in writing why light, continuous force is generally accepted as the appropriate force system in orthodontic treatment

3. Discuss anchorage control within defined biologic and biomechanical principles

4. Describe the major types of orthodontic appliances for the application of force

5. Describe and explain the components of the edgewise appliance

**9. Orthodontic Decision-Making**

1. Describe the steps in performing the Bolton’s analysis

2. Describe the steps in performing the Moyer's analysis

3. Recognize the three categories into which all space management problems fall and differentiate among them: space maintenance, space regaining, and gross discrepancies (extraction)

4. Identify potential problems during diastema closure

5. Identify patients whose malocclusions may be treated by a general practitioner

**10. Cephalometrics**

1. Provide an understanding of cephalometric landmarks, planes and lines

2. Describe the Steiner Cephalometric analysis

3. Describe how cephalometric interpretation is used to identify whether a problem is dental or skeletal

**11. Sagittal - Horizontal treatment**

1. Describe reasons for initiating treatment in the primary and mixed dentition.

2. Describe typical anteroposterior (AP) skeletal problems in preadolescents

3. Discuss issues in deciding when to treat skeletal problems (e.g., timing)

4. Describe types of appliances used to modify growth in patients with mandibular deficiency, maxillary excess, maxillary deficiency, and mandibular excess.

**12. Transverse Treatment**
1. Describe various types of crossbites

2. Describe the effects of crossbite on facial growth

3. Describe appliances used to correct crossbites

13. Vertical Treatment

1. Describe various types of vertical problems (deep bite and open bite)

2. Recognize those conditions that should be treated in the primary and/or mixed dentition

3. Describe appliances used to correct vertical problems

3. Discuss how findings from other diagnostic aids (cephalometric analysis, occlusal relationships, and functional analysis) could modify treatment.

14. Possibilities with clear aligner therapy (Invisalign)

1. Identify ideal case types for clear aligner therapy

2. Understand all aspects of the Invisalign process

15. Orthognathic Surgery

1. Describe the indications for an orthognathic surgery approach to the correction of malocclusions.

2. Describe the orthodontic set up prior to surgery and the sequence of treatment steps.

3. Describe types of orthognathic surgical treatment plans for correction of the following malocclusions: Class II, Class III and anterior open bite

16. Retention and Stability

1. Discuss retention techniques and stability following adult tooth movement

2. Describe removable and fixed retainers

VII. Course Competencies

This course teaches to the following competency(ies) in the "Competencies for the New Dental Graduate".
23: Provide oral health care within the scope of general dentistry to include malocclusion and space management.

**VIII. Evaluation**

Attendance at lectures and labs is mandatory.

The method of evaluation for this course will be based on

1. Performance of scheduled laboratory=10%
2. Written exams (Midterm and Final) (multiple choice)=90% (45% & 45%)

**Laboratory**

The lab grade will consist of bracket placement and archwire placement

**There are no excused absences without Course Director pre-approval for the laboratory, quizzes and written examinations**

It is not always possible to arrange individual make-up lab sessions and no credit will be given for missed lab assignments.

Students are encouraged to review exams with the course director.

**Remediation:**

If a student receives an "E" grade in this course they must meet with the Course Director and take a written remediation exam.

**Student Evaluation of Instruction:**

“Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at [https://ufl.bluera.com/ufl/](https://ufl.bluera.com/ufl/). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via [https://ufl.bluera.com/ufl/](https://ufl.bluera.com/ufl/). Summaries of course evaluation results are available to students at [https://gatorevals.aa.ufl.edu/public-results/](https://gatorevals.aa.ufl.edu/public-results/).”

**IX. Administrative Practices**
Administrative practices for all UFCD courses are universally applied. Exceptions to or deviations from these practices are stated in the individual syllabi by the course director. When not individually stated in the syllabus, course administrative practices default to those identified under "Course Policies" on the DMD Student Website:

https://dental.ufl.edu/education/dmd-program/course-policies/

## X. Grade Scale

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