

School of Dentistry

Integrated Dental Practice 2
Third Year DMD
Semester 2
Orthodontics

2026

DENT5311 Orthodontics Module Guide

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ORTHODONTICS

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DENT5311 – ORTHODONTICS
SEMESTER 2

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This is a new version of the Orthodontics Module, within a new Unit - Integrated Dental Practice 1. This Orthodontic Module Guide is accurate at the time of publication. It is possible that changes in the Module Guide may be required to accommodate staffing availability, resources or unforeseen changes that may occur in the Unit- Integrated Dental Practice 1.

I. HOW YOU DO IT

A. The Course

This course builds on the knowledge you have acquired about human growth and development to:

1. give you a perspective on orthodontic problems with special reference to their definition, prevalence and etiology;
2. teach you diagnostic procedures for developmental problems, so that you can distinguish skeletal from dental components of these conditions and will be prepared to sort patients by the difficulty and severity of their problems;
3. provide an introduction to clinical treatment of children. This includes learning the procedures in treating a child in the orthodontic clinic, the actual diagnostic work-up of your first child patient, and participation in appointments in which treatment is planned.

At the commencement of this unit, it is assumed that the student has a working knowledge of the 2nd Year DMD Growth and Development unit. Students should be able to:

- Outline the graphs for average somatic growth changes from birth to adulthood, describing the impact of early and late development, gender effects and factors which may affect the growth patterns, timing and rates.

- Describe the impact of these somatic growth changes on growth and development of the jaws and dentition.
- Differentiate children with normal and abnormal somatic growth
- Identify normal and abnormal patterns of jaw growth
- Explain the theories of craniofacial growth and outline and explanation for the aetiology of facial growth problems
- Explain the role of endocrine function in the development of normal and abnormal jaw growth
- Describe the dentofacial changes associated with adolescence
- List the timings of tooth eruption and identify the dental age of a patient
- List the six significant stages of tooth development.
- Describe clinical problems associated with disruption to the lifecycle of the tooth
- Describe the four major theories of tooth eruption and provide and explanation for clinical problems associated with tooth eruption
- Describe the normal dental arch dimensional changes between the deciduous to the permanent dentition
- Discuss in general terms, the importance of growth and development of the dentofacial region in the therapeutic procedures used to address developmental problems.
- Describe the maturational changes which occur in the growing dentition from childhood through to late adulthood

PLEASE ENSURE THAT YOU HAVE REVIEWED THE ABOVE MATERIAL AS YOU WILL NEED A WORKING KNOWLEDGE TO SUCCEED IN YOUR LABORATORY AND CLINICAL SESSIONS

The seven goals above correspond to the four instructional units of the course but in no means aims to prepare you for comprehensive management of orthodontic problems. On occasion, young children will present to the clinic with problems which lie outside the scope of this course. For interest, students will be encouraged to research issues associated with these problems but this will not be included in the examination process.

Like Growth and Development (Level I), this course is largely self-instructional. In addition to types of self-instructional material you have seen previously, this course has laboratory exercises in which diagnostic techniques are employed and laboratory and clinical simulation techniques are performed. You will have personal contact with faculty in seminars to discuss material you have learned from computer teaching programs and reading assignments. An amount of lecture time equivalent to what you would have spent in lectures to cover the self-instructional materials once has been set aside, but of course you can view the self-instructional materials at any time during their unit.

The course is in four didactic units in two levels. The four units in Level III and Level IV, in which the self-instructional material is concentrated, span over Semester2. **Superimposed in this time are the Practical sessions and two formative on-line tests within the UNC Orthodontic Instruction system**. The material from Level III Units A and B and Level IV A and B will constitute the Semester 1.

The Level III and IV Units may be reviewed at any time but will be formally reviewed in Semester 2.

It is your job to:
1) **read the instructions**
2) view the videos and/or computer teaching programs (all with self-tests), and read the assigned texts
3) use feedback from the video/computer self-tests and further review to be sure you have learned the material
4) complete the laboratory exercises and online formative quizzes according to the deadlines outlined in the schedule
5) attend the seminar at the end of each unit.

Learning Strategies

Study materials for this course consist of
1) Computer teaching programs
LOCATION OF MATERIALS: Access to modules and self-tests is the same as you used for Level I and II, so you may not need to do the following.

- OrthodonticInstruction.com
- and click on "Register for access".
- Fill out the registration form, using uncortho as the registration code.
- Once you submit your registration, an automated email will be sent to the email address you entered into the form: NOTE: Your account will not be active until you click on the verification link in this email.
- After your account has been verified, you can then log into the site using your username and password.

2) Reading materials from your orthodontic text, Contemporary Orthodontics (5th edition or 6th edition)
3) Computers are available in the computer labs at OHCWA or in the University Libraries, and through use of your personal laptop computer at any of the various connections in the Dental School. Level II material has self-tests for you to use to determine how well you understand a given topic.
There will be some seminars in which you will need to take notes, just as in other courses. Deliberately, the same ideas are presented in more than one format. You need to go through all the assigned material, because the coverage and content are different in each. Then you can review and study it in the format you prefer.

It is important to review the learning objectives for each Unit prior to the review session and formulate your responses individually to gain maximum value from the experience. Although faculty or Post Graduate Students will present a summary of these focus points, it is not the intention to provide students with "another" lecture to learn verbatim. This is an opportunity to discuss learning objectives.

The course has been revised each year, almost exclusively based on student feedback. We have added material as an outcome of student suggestions and deleted/revised material as an outcome of student concerns. Please continue to let me know of any comments or concerns that you think would improve the course.

Assessment

The indicative assessment structure provides an overview of how this unit is typically assessed. In order to fit teaching requirements, this may change slightly from year to year. Restrictions to face-to-face learning associated with COVID-19 may result in variation to the Indicative Assessment structure.

Professionalism	Pass/Fail
Practical Exercises*	Formative
Final Examination (2 hrs-MCQ & short answers)	100%
DENT5311 Orthodontic Module Component	See Unit Guide

*The Orthodontic Practical Exercises will comprise a number of tasks completed at different times in the unit:

1. Practical exercises — P/F
   a. Wire Bending 1
   b. Wire Bending 2
   c. Orthodontic Appliance adjustment
   d. Knowledge Based Quiz
2. LMS Cases review (Turnitin Exercise) — P/F
3. Clinical Orthodontic Logbook — P/F

P/F indicates the Practical exercise must be completed to a didactically, clinically or diagnostically acceptable level (indicating competence) before the end of Semester 2. Failure to submit the assessment by the end of Semester 2, not including the Study Break or Examination time, will result in the student not being permitted to take the DENT5311 Orthodontics summative assessment item.

DENT5311 assessment - The Orthodontic Practical laboratory items are Pass / Fail and completion of the assignments is compulsory to sit the DENT5311 Final Examination. Attendance is compulsory for all sessions and missed sessions have to be made up and documented. Otherwise, the student is not permitted to sit the Final examination in DENT5311.

The Orthodontic Final Examination will be a 2-hour MCQ and/or MCQ with short answer and short answer examination.

Professionalism – In the assessment process professionalism will be based on the Professionalism Policy for Dental Students and will be assessed as Pass/Fail component.

Supplementary Examinations and Assessment

If a student does not pass this Module, then a Supplementary Examination may be granted but this will depend on the student's overall academic performance to date in the DMD course.

Decisions regarding Supplementary Exams and additional assessments are made by the Board of Examiners at its meeting in early December. A Supplementary Examination can take any form and will not necessarily be a written examination paper. The Course Coordinator and/or the Board of Examiners may recommend an alternative form of assessment if the student's work has been deficient in one particular part of the course – in this case a student may be required to undertake extra work and assessment in that part of the course only (e.g. if the diagnosis tests were failed, then an OSCE style exam or a written assignment may be granted; if insufficient practical work was done then extra practical work may be required, etc).

Preparing for Exams:

This course has multiple resources for you to utilize in your training: Textbook**, online modules, module self-tests, lab manual, seminar presentations, and prior coursework in orthodontics.** Students in the past have expressed concern about expectations not being aligned regarding exams and how best to prepare. Considering this, here is a synopsis of the resources that should best prepare you to excel in this course:

Textbook – Mastery of assigned readings (textbook) correlates to the highest level of preparedness for exams. Reading assigned pages should be considered an absolute necessity for excellent performance in the course.

Online modules – The modules approximate the textbook's information with supplemental cases and pictures. Online modules cover important concepts found in the book but do not include everything. If you study only the modules, you will not be fully prepared for the exams.

Module self-tests – These are a good representation of the difficulty level of questions represented in the course exams.

Lab material and outlines – this part of the guidebook is important to review for exams.

Seminar Presentations – presentations delivered by the DMD students and Orthodontic Faculty will help guide you in your studies and are particularly helpful to clarify any questions you may have.

Prior Growth and Development Coursework – Information from prior course reading/modules may be on future Growth and Development exams. Any questions from prior coursework material will be very general concepts

II. THE SCHEDULE

9:00 -12:00 Monday, 22 June 2026	**Course Introduction and Clinical Orientation** **Why do we do orthodontics?** **Role of the general practitioner in orthodontics** **211 VLC** **A/P Mike Razza**
9:00-12:00 Monday, 29th June 2026	**UNC Level III – Biomechanics and Preclinical Orthodontics Unit A and B** **OHCWA 211 VLC** **ONLINE** – Self Directed Learning
10:00 - 12:00 Monday, 6th July 2026	**Class Review/Tutorial Level III Unit A and B** **OHCWA 211 VLC** **Dr Daniel Fernandes**
13:00 - 16:00 Monday, 6th July 2026	**Contemporary fixed appliances** **Orthodontic Retention** **Special Needs Patients and Orthodontics** **OHCWA 211 VLC** **Dr Daniel Fernandes**
11:00 - 12:00 Monday, 13th July 2026	**Orthodontic Instrumentation and Emergencies** **Basic Interdisciplinary Treatment** **OHCWA 211 VLC** **Dr Daniel Fernandes**
13:00 - 16:00 Monday, 13th July 2026	**Basic Orthodontic Wire bending 1- Seminar and Wire bending 1** **OHCWA Pros Lab** Dr. Daniel Fernandes, OHCWA Lab Technician and PG Orthodontic Registrars
9:00-12:00 Monday, 28th July 2026	**Basic Orthodontic Wire bending 1 - Seminar and Wire bending 2** **OHCWA Pros Lab** A/p Mike Razza, Dr. Daniel Fernandes, OHCWA Lab Technician and PG Orthodontic Registrars

13:00 - 16:00 Monday, 10th August 2026	**Fixed Space Management and Habit appliances Seminar** **Remedial wire bending and orthodontic appliance adjustment** A/p Mike Razza, Dr. Daniel Fernandes & PG Orthodontic Registrars
9:00 - 10:00 Monday, 17th August 2026	**Acrylic processing and finishing and Acrylic repair Demonstration Videos Online**
10:00 – 11:00 Monday 17th August 2026	Level III - Unit A & B Knowledge Based Quiz – Formative KJG Sutherland LT
9:00 - 12:00 Monday, 31st August 2026	**UNC Level IV Advanced Orthodontics Parts of Units A, B and C** **KJG Sutherland LT** **Online** – Self Directed Learning
14:00 -17:00 Monday, 7th September 2026	**LMS Case Reviews** **Student Group Presentations** **211 VLC** **Dr. Daniel Fernandes**
10:00-12:00 Monday, 21st September	**Review/Tutorial Level IV- Parts of Unit A, B and C** **Why we do Orthodontics?** **To Extract or Not to Extract Class I Crowding/Protrusion/Camouflage** **Orthodontic Retention (See recorded Lecture for Review)** **The Best Time for Orthodontic Treatment** **OHCWA 211 VLC** **Dr Daniel Fernandes**
13:00 -16:00 Monday, 5th October 2026	**LMS Case Reviews** **Student Group Presentations** **211 VLC** **A/P Mike Razza**
	FINAL EXAMINATION **UWA Final Examination Timetable** **Time, Date and Venue TBA**

III. MINIMUM TASKS STUDENTS ARE REQUIRED TO COMPLETE THE MODULE
LEVEL III - UNIT A.

Orthodontic Diagnosis & Treatment Planning

- Recognize and evaluate skeletal and dental relationships in all three planes of space.
- Recognize and quantify the patient's arch length status.
- Evaluate the skeletal and arch length considerations, interactions and appropriateness of treatment or non-treatment.
- Recommend treatment or referral of specific problems based upon case evaluation.

Biologic Response to Orthodontic Force

- Describe the histologic/cellular/vascular response of the supporting structures to force applied to teeth.
- Discuss the role of biologic electricity in maintenance and turnover of alveolar bone.
- Describe the relationship of orthodontic force levels to anchorage.

Mechanical Principles in Controlling Orthodontic Force

- Define and apply the principles of anchorage in appliance design to control and minimize unwanted tooth movement.
- Describe and recognize different types of removable orthodontic appliances in the following categories: (a) Functional (Orthopaedic) appliances; (b) Crozat; (3) Hawley type; and (4) Clear Aligner Therapy.
- Describe and make correct appliance designs of the active Hawley type with specific recommendations for these components: (a) active; (b) retention; (c) connector; and (d) reactive or anchorage.
- Select the correct wire size for active and retentive elements of active Hawley type appliances.
- Define and explain the biomechanical principles that pertain to orthodontics, specifically the meaning of terms such as "force", "moment", "fulcrum", "center of rotation", and "anchorage" as applied to biomechanics.
- Demonstrate the relationship between wire size, strength, stiffness and the force produced for a given deflection.
- Explain the difference between tipping and bodily tooth movement, and how an applied force can produce either.

Orthodontic Anchorage and Controlled Tooth Movement

- Describe the reaction of a tooth to a single force placed against the crown.
- Describe the reaction of a tooth to a two-force system placed against the crown as a function of the moment-to-force ratio.
- Indicate the changes in orthodontic forces and moments needed for successful movement of a tooth that has lost alveolar bone support (as from previous periodontal disease).

- Describe the adaptations in the contemporary edgewise appliance to reduce in-out (first order) bends in arch wires.
- Describe the adaptations in the contemporary edgewise appliance to reduce angulation (second order) bends in arch wires.
- Describe the adaptations in the contemporary edgewise appliance to reduce torque (third order) bends in rectangular arch wires.

UNC LEVEL III - Unit B

Space Management in Preadolescent Children

- Discuss the indications and contraindications for the selection of space maintaining appliances.
- Discuss the indications and contraindications for the selection of various space regaining appliances.
- Discuss the construction of different appliances.
- Describe the timing and sequence of treatment.
- Identify the possible causes of midline diastemas and spacing.
- Discuss the relationship between spacing and protrusion

Potential Crowding & Space Maintenance

- Describe diagnostic information necessary to make decisions concerning space maintenance or management.
- Identify and discuss alternative space analysis procedures.
- Discuss the importance of determining the etiology of tooth loss.
- Discuss the phenomenon of space loss.
- List factors that weigh in the decision whether to maintain or regain space.
- Discuss the relevancy of the above factors to space management.

Crossbites and Vertical Problems in Children

- Identify skeletal contributions to anterior crossbites.
- Identify dental contributions to anterior crossbites.
- Identify the significance of functional shifts in anterior crossbites.
- Evaluate space, tooth orientation and position, intermaxillary relationships, and eruption timing and sequence regarding the teeth involved in the anterior crossbites as etiologic and treatment factors.
- State rationale for correcting anterior crossbites.
- Recommend appropriate treatment for anterior crossbites including timing and appliance design.
- Explain the relevance of facial form to posterior crossbite diagnosis.
- List the etiologic factors of posterior crossbite.
- Describe the clinical findings consistent with a bilateral maxillary constriction, a bilateral constriction accompanied by a mandibular shift, and a true unilateral maxillary constriction.
- Describe the rationale for correcting posterior crossbites.
- Describe the appropriate timing and appliance design for posterior crossbite treatment.

Vertical Problems / Habits

- Define vertical problem and its classification, i.e., dental, skeletal, and possible aetiologies.
- Describe epidemiology relating to vertical problems and malocclusion.
- Identify skeletal patterns predisposing patients to deep bite and open bite.
- Explain oral-facial growth patterns and physiology as they relate to vertical problems.
- Identify treatment and timing for vertical problems.

Adjunctive Orthodontic Treatment Procedures

- Describe indications for repositioning anterior teeth in adults.
- Discuss use of diagnostic set-ups in planning adjunctive incisor positioning.
- Describe indications and methods for extrusion of fractured teeth.
- Describe periodontal implications of orthodontic treatment in adults.
- Identify appropriate appliances for different clinical problems.
- Explain types of appliances, in terms of active and reactive units.
- Explain appliance placement, adjustments and timing.
- Identify potential side effects or sequela of treatment.
- Describe patient tolerance of the appliances.
- Identify expected treatment time.
- Describe retention procedures.

UNC LEVEL IV - Unit A - Orthodontic Treatment Concepts

Why Do We Do Orthodontics

- Effects of malocclusion on health, function and psychosocial well-being are reasons for orthodontic treatment.

To Extract or Not To Extract, Part 1 Class I Crowding/Protrusion

- For crowding and protrusion of incisors, esthetics and stability determine the decision to expand the dental arches vs. reducing tooth mass or number.

UNC LEVEL IV - UNIT B – Complex Treatment

To Extract or Not To Extract, Part 2: Camouflage?

- Camouflage (reducing or increasing incisor prominence) vs. surgery in treatment of Class II and Class III problems.

Special Considerations In Orthodontics For Adults

- Fourth Year 2027.

Complex Adjunctive Treatment

- Fourth Year 2027

Orthodontic Retention

- The reasons for retention: PDL reorganization, gingival fiber effects and equilibrium changes due to growth.

UNC LEVEL IV - UNIT C – Treatment Timing in Complex Problems

Indications for Orthognathic Surgery

- Fourth year 2027

Orthodontic Management of Patients with Cleft Lip and Palate

- Fourth Year 2027

The Best Time For Orthodontic Treatment

- Considerations in treatment timing and current knowledge about the preferred time for treatment of Class I, II and III problems.

UNC LEVEL IV - UNIT D – Professional Interactions

- Fourth year 2027

IV. PRACTICAL EXERCISES

SEE Orthodontic Module Workbook

LMS CASES (CLINICAL INTRODUCTION TO THE CHILD PATIENT)
Two Parts: Individual Assignment and Group Assignment

Directions Individual Assignment:

1) Go through the instructional materials, and work up the LMS patient cases for all LMS Cases – Complete the Turnitin Assignment (see LMS On-line Cases)

2) Review - Unit 1 Self Instruction
Malocclusion: Definition and Prevalence
Known Causes of Malocclusion
Equilibrium Theory and the Aetiology of Malocclusion
Essentials of Orthodontic Diagnosis
Concepts of orthodontic Treatment Planning

3) Read Contemporary Orthodontics 6th Edition, Chapter 7 Orthodontic Treatment Planning: From Problem List to Specific Treatment Plan.

4) Review all Case examples available on LMS

5) Carry out facial form analysis, review the space analysis and cephalometric analysis as required for all Case examples.

6) Produce a Prioritised Problem List and Treatment Objectives for all Case examples.

Turnitin Assignment: All students to review ALL Case records - photographs for all cases, models and radiographs (provided for some cases). Each student will submit a Tunitin presentation on all LMS Case examples at end of Semester 2. 5:00pm Friday, 16th October 2026.

Directions Group Assignment:

1) Go through the instructional materials and work up the example LMS patient case for your group's assigned LMS Case.

2) Carry out facial form analysis, review the space analysis and cephalometric analysis as required for the Group's assigned case.

3) Produce a Prioritised Problem List, Treatment Objectives, be prepared to discuss Treatment Timing, Suggestions for Treatment, what happens if no treatment is provided for the patient for the Group's assigned case.

4) Create a Group Power Point Slide Presentation accessible on a USB thumb drive. The Group will present the case in front of the Third Year Class on Monday, 7th September or Monday, 5th October 2026 (All Groups to be prepared to present cases by 2:00 pm Monday 7th September 2026.

Clinical Logbook – See LMS Assignment Details – Due date Friday, 23rd October 2026

V. ADMINISTRATION

Ethical Scholarship, Academic Literacy and Academic Misconduct

Ethical scholarship is the pursuit of scholarly enquiry marked by honesty and integrity. **Academic Literacy** is the capacity to undertake study and research, and to communicate findings and knowledge, in a manner appropriate to the particular disciplinary conventions and scholarly standards expected at university level.
Academic misconduct is any activity or practice engaged in by a student that breaches explicit guidelines relating to the production of work for assessment, in a manner that compromises or defeats the purpose of that assessment. **Students must not engage in academic misconduct**. Any such activity undermines an ethos of ethical scholarship. Academic misconduct includes, but is not limited to cheating, or attempting to cheat, through:

- Collusion
- Inappropriate collaboration
- Plagiarism
- Misrepresenting or fabricating data or results or other assessable work
- Inappropriate electronic data sourcing/collection
- Breaching rules specified for the conduct of examinations in a way that may compromise or defeat the purposes of assessment.

Penalties for academic misconduct vary according to seriousness of the case, and may include the requirement to do further work or repeat work; deduction of marks; the award of zero marks for the assessment; failure of one or more units; suspension from a course of study; exclusion from the University, non-conferral of a degree, diploma or other award to which the student would otherwise have been entitled. Refer to the Ethical Scholarship, Academic Literacy and Academic Misconduct and individual Faculty policies.