

College of Dentistry, King Saud University
Department of Pediatric Dentistry and Orthodontics
Graduate Program in Orthodontics

ADULT ORTHODONTICS COURSE

Course Code and Number: POS 556 (Orthodontic Seminar III)

Course Name: Adult Orthodontics

Pre-Requisites: POS 548 (Orthodontic Seminar II)

Course Level: Offered in the 2nd Semester of the 3rd Year to the Graduate Students

Room: #441065 (1st Floor, Dental University Hospital)

Time: Sundays, 8:00 – 10:00 am

Dates: January 17 – April 25, 2021

Course Director:	Office Hours	Office Location	Telephone	E-mail
Abdullah M. Aldrees BDS, DMSc	12:00–1:00 pm Monday, Tuesday	2A/49A	011 805-1975	amaldrees@ksu.edu.sa

COURSE DESCRIPTION

As dental awareness is growing and orthodontic appliances are becoming more socially acceptable, more adult patients are seeking orthodontic treatment. While the approach to treatment in adult patients follows the same process as that for children, the presence of specific issues, which are unique for the adult patient group, makes the orthodontic management of their malocclusions different.

The course includes: problem-based learning cases, a review of the relevant literature that discusses the management of adult orthodontic patients, lectures given at previous AAO annual sessions by distinguished clinicians, in addition to special presentations by selected guest speakers.

COURSE GOAL

The goal of the course is to prepare graduate students in orthodontics, periodontics, and restorative dentistry to care for adult patients with complex orthodontic needs.

COURSE OBJECTIVES

This course aims to qualify the students to:

1. Recognize the characteristics of the adult orthodontic patients that differentiate them from the younger patient population
2. Determine the appropriate approach (adjunctive vs. comprehensive) to adult orthodontic patient treatment
3. Write the proper sequence of treatment procedures in the interdisciplinary management of adult orthodontic patients
4. Describe the appropriate orthodontic management of endodontically involved teeth
5. Identify the special anchorage problems unique to adult patients
6. Select the best orthodontic management of patients with periodontal problems
7. Analyze the esthetic periodontal challenges in adult patients and propose interdisciplinary solutions to produce ideal esthetic results
8. Explain how certain medical conditions and drugs affect the orthodontic treatment
9. Propose orthodontic management plans for elderly and medically compromised patients
10. Recognize the special psychological issues (motivation, expectations, and satisfaction) of the adult orthodontic patient
11. Compare the approaches to accelerate orthodontic treatment
12. Recognize the capabilities and the limitations of Lingual Orthodontic Appliances and Clear Aligners.

STUDY PLAN AND REQUIREMENTS

To receive the maximum benefit from this course, the student must attend all seminars. A large emphasis of this course is placed on the careful review and discussion of the selected references. All students must read the articles under discussion, and the student assigned to present the article should prepare and distribute the "Article Summary Sheet" (sample is provided on page 6 of this syllabus). Also, students are expected to complete the assignments and participate actively in the PBL sessions. To facilitate the graduate students learning through research, each student will be assigned to present one of the following topics at the end of the course (May 23, 2021):

1. Bonding to Porcelain
2. Snoring and Sleep Apnea
3. Efficiency and Effectiveness of Clear Aligners
4. Retention Considerations in Treatment of Adults
5. Management of the Missing Upper Lateral Incisors
6. Impact of Orthodontic Treatment on Adult Patients

Students are expected to prepare a 10-minute presentation that is based on a comprehensive review of the most updated literature relevant to the assigned topic. Also, a review of the assigned "Case Reports" will be part of the resident's final presentation.

Satisfactory completion of this course requires:

1. Attendance in classes mandatory. Twenty-five percent (25%) of absence from the class will deprive the student from taking the final examination (University Rules & Regulations). Attendance is checked every week.
2. A minimal passing grade of 70% must be achieved of the combined grades of all the exams and activities.

COURSE EVALUATION

The students will be evaluated by their performance during the course. The total grade is 100%, and it is distributed as follows:

CONTINUOUS ASSESSMENT	FINAL EXAMINATION	TOTAL
Literature Review, PBL Preparation Case Report Analysis, Short Presentations	Written	
60	40	100

The course is a pass/fail course, so achieving the minimal passing grade of 70% will award the student with a (P) grade.

STUDENT EXPECTATION

Out of respect for our lecturers, it is kindly asked that students' attention is on the lecture being presented and they interact, as much as possible, with the presenter. Students are expected to present professionalism by not focusing attention on other materials. Students are expected to demonstrate punctuality for every class. Students are also expected to demonstrate preparedness for the sessions with respect to completing the assignments.

POLICY ON ATTENDANCE

Due to the interactive and participatory nature of this course, attendance at each class session is required. If you are unable to attend class due to a medical or family emergency, you should contact the course director and submit an excuse in writing (via email). Student will not be allowed to enter the classroom if they are more than 10 minutes late.

STUDENT ACADEMIC INTEGRITY, SCHOLASTIC DISHONESTY, AND PROFESSIONALISM

Scholastic misconduct is broadly defined as "any act that violates the right of another student in academic work or that involves misrepresentation of your own work. Scholastic dishonesty includes, (but is not necessarily limited to), cheating on assignments or examinations; depriving another student of necessary course materials; or interfering with another student's work." Students are expected to govern their conduct toward their colleagues, faculty, and other professionals with integrity, mutual respect, and honor.

Scholastic misconduct will result in failure of the course and the course will be required as a retake during the following year. Professionalism behavior in attendance and active participation will be monitored and recorded in the weekly evaluation.

COMMUNICATION

All individual and full class communication will be through your e-mail accounts. Announcements intended for the whole class will be sent by e-mail. It is a requirement of the course to check your e-mail daily. While in class, please silence your cell phones.

RECOMMENDED TEXTBOOK

- Adult Orthodontics
Birte Melsen
2012, 1st Edition, Wiley-Blackwell, Hoboken.
ISBN: 978-1405136198
- Chapter 19: Special Considerations in Treatment for Adults
in: Contemporary Orthodontics
William R. Proffit, Henry W. Fields Jr., Brent E. Larson, David M. Sarver
2019, 6th Edition, Mosby Inc., Saint Louis.
Hardcover ISBN: 978-0323543873

Additional Reading:

1. Bagga DK. Adult orthodontics versus adolescent orthodontics: an overview. *J Oral Health Comm Dent* 2010;4:42-7.
2. Buttke TM, Proffit WR. Referring adult patients for orthodontic treatment. *J Am Dent Assoc.* 1999 Jan;130(1):73-9.
3. Kokich VG. Adult orthodontics in the 21st century: guidelines for achieving successful results. *World J Orthod* 2005;6 Suppl:14-23.
4. Zachrisson BU. Orthodontic treatment in a group of elderly adults. *World J Orthod* 2000;1:55-70.
5. Christensen L, Luther F. Adults seeking orthodontic treatment: expectations, periodontal and TMD issues. *Br Dent J.* 2015 Feb 16;218(3):111-7.
6. Abdelkarim A, Jerrold L. Strategies for improved interdisciplinary care and communication in orthodontics. *Am J Orthod Dentofacial Orthop* 2017 Nov;152(5):717-21.
7. Spear FM, Kokich VG, Mathews DP. Interdisciplinary management of anterior dental esthetics. *JADA* 2006;137(2):160-9.
8. Thilander B. Orthodontic space closure versus implant placement in subjects with missing teeth. *J Oral Rehabil* 2008;35:64-71.
9. Hamilton RS, Gutmann JL. Endodontic-orthodontic relationships. *Int Endo J* 1999;32:343-60.
10. Pinho T, Neves M, Alves C. Multidisciplinary management including periodontics, orthodontics, implants, and prosthetics for an adult. *AJODO* 2012 Aug;142(2):235-45.
11. Capelozza Filho L, Aranha MFB, Ozawa TO, Cavassan AO. Orthodontic treatment in adults: Restoring smile esthetics. *Dental Press J Orthod* 2012 Sept-Oct;17(5):53-63.
12. Kovich V. Esthetics and anterior tooth position: an orthodontic perspective. Part I: Crown length. *J Esthet Dent* 1993;5(1):19-23.
13. Kokich V. Esthetics and anterior tooth position: an orthodontic perspective. Part II: Vertical position. *J Esthet Dent* 1993;5(4):174-8.
14. Kokich V. Esthetics and anterior tooth position: an orthodontic perspective. Part III: Mediolateral relationships. *J Esthet Dent* 1993;5(5):200-7.
15. Ong M, Wang H. Periodontic and orthodontic treatment in adults. *AJODO* 2002;122:420-8.
16. Mathews D, Kokich V. Managing treatment for the orthodontic patient with periodontal problems. *Semin Orthod* 1997;3:21-38.
17. Kokich V. Esthetics: the orthodontic-periodontic restorative connection. *Semin Orthod* 1996;2:21-30.
18. Sharma AA, Park JH. Esthetic considerations in interdental papilla: remediation and regeneration. *J Esthet Restor Dent* 2010;22:18-28.
19. Gkantidis N, Christou P, Topouzelis N. The orthodontic-periodontic interrelationship in integrated treatment challenges: a systematic review. *J Oral Rehabil* 2010 May 1;37(5):377-90.
20. Shekar S, Bhagyalakshmi A, Chandrashekar B R, Avinash B S. Periodontal considerations during orthodontic treatment. *Indian J Oral Health Res* 2017;3:1-8.

21. Morris JW, Campbell PM, Tadlock LP, Boley J, Buschang PH. Prevalence of gingival recession after orthodontic tooth movements. *Am J Orthod Dentofacial Orthop.* 2017 May;151(5):851-859.
22. Goyal Amit, Kalra JPS, Bhatiya Pankaj, Singla Suchinder, Bansal Parul. Periodontally accelerated osteogenic orthodontics (PAOO) - a review. *J Clin Exp Dent.* 2012 Dec; 4(5): e292-e296.
23. Paolone MG, Kaitsas R. Orthodontic-periodontal interactions: Orthodontic extrusion in interdisciplinary regenerative treatments. *Int Orthod* 2018;16(2):217-45.
24. Shelton AT, Hodge T, Scott P. Lingual orthodontics - clinical applications and patient information. *Dent Update* 2018;45;141-8.
25. Auluck A. Lingual orthodontic treatment: what is the current evidence base? *J Orthod.* 2013 Sep;40 Suppl 1:S27-33.
26. Papageorgiou SN, et al. Lingual vs. labial fixed orthodontic appliances: systematic review and meta-analysis of treatment effects. *Eur J Oral Sci* 2016;124(2):105-18.
27. Ata-Ali F, et al. Adverse effects of lingual and buccal orthodontic techniques: A systematic review and meta-analysis. *AJODO* 2016;149(6):820-9.
28. Mistakidis I, et al. Clinical outcomes of lingual orthodontic treatment: a systematic review. *Eur J Orthod* 2016;38(5):447-58.
29. Ata-Ali F, et al. Are there differences in treatment effects between labial and lingual fixed orthodontic appliances? A systematic review and meta-analysis. *BMC Oral Health* 2017 Nov 22;17(1):133.
30. Hoogeveen EJ, et al. Surgically facilitated orthodontic treatment: a systematic review. *AJODO* 2014;145(4 Suppl):S51-64.
31. Hoffmann S, et al. Influence of piezotomy and osteoperforation of the alveolar process on the rate of orthodontic tooth movement: a systematic review. *J Orofac Orthop* 2017;78(4):301-11.
32. Miles P. Accelerated orthodontic treatment - what's the evidence? *Aust Dent J.* 2017 Mar;62 Suppl 1:63-70.
33. Kacprzak A, Strzecki A. Methods of accelerating orthodontic tooth movement: A review of contemporary literature. *Dent Med Probl* 2018;55(2):197-206.
34. Aljabaa A, et al. Effects of vibrational devices on orthodontic tooth movement: A systematic review. *AJODO* 2018 Dec;154(6):768-79.
35. Baghizadeh Fini M, Olyae P, Homayouni A. The Effect of Low-Level Laser Therapy on the Acceleration of Orthodontic Tooth Movement. *J Lasers Med Sci* 2020;11(2):204-11.

COURSE SCHEDULE

WEEK	DATE	CONTENT	METHOD
1.	2021 JAN 17	Introduction: Adult Orthodontic Patients – Who Are They? Chapter 1, Adult Orthodontics + Chapter 19, Contemporary Orthodontics	LECTURE
	1442 06 04	Diagnosis and Treatment Planning Considerations in Treatment for Adults Chapters 2, 4, Adult Orthodontics + Chapter 19, Contemporary Orthodontics	
2.	2021 JAN 24	Diagnosis and Treatment Planning Considerations: 1. Bagga DK. <i>Adult orthodontics versus adolescent orthodontics: an overview.</i> J Oral Health Comm Dent 2010;4:42-47. 2. Butkic TM. <i>Profit WR. Referring adult patients for orthodontic treatment.</i> J Am Dent Assoc. 1999;130(1):73-79. 3. Kokich VG. <i>Adult orthodontics in the 21st century: guidelines for achieving successful results.</i> World J Orthod 2005;6 Suppl:14-23. 4. Zachrisson BU. <i>Orthodontic treatment in a group of elderly adults.</i> World J Orthod 2000;1:55-70. 5. Christensen L, Luther F. <i>Adults seeking orthodontic treatment: expectations, periodontal and TMD issues.</i> Br Dent J 2015 16:218(3):111-117. 6. Abdelkarim A, Jerrold L. <i>Strategies for improved interdisciplinary care and communication in orthodontics.</i> AJODO 2017;152(5):717-21.	LITERATURE REVIEW + CONFERENCE LECTURE
	1442 06 11	Recorded Lecture: Dr. Vincent G. Kokich, AAO 2006: Contemporary Adult Orthodontics: Are Your Treatment Objectives Realistic?	
3.	2021 JAN 31	A. <i>Lecture:</i> The Orthodontic-Restorative Connection B. <i>Problem-Based Learning Case:</i> Braces Later in Life	LECTURE + PBL
	1442 06 18		
4.	2021 FEB 7	A. <i>Problem-Based Learning Case:</i> Braces Later in Life B. Interdisciplinary Treatment: 1. Spear FM, et al. <i>Interdisciplinary management of anterior dental esthetics.</i> JADA 2006;137(2):160-9. 2. Thilander B. <i>Orthodontic space closure versus implant placement in subjects with missing teeth.</i> J Oral Rehabil 2008;35:64-71. 3. Hamilton RS, Gutmann JL. <i>Endodontic-orthodontic relationships.</i> Int Endo J 1999;32:343-60. 4. Pinho T, et al. <i>Multidisciplinary management including periodontics, orthodontics, implants, and prosthetics for an adult.</i> AJODO 2012;142(2):235-45. 5. Capelozza Filho L, et al. <i>Orthodontic treatment in adults: Restoring smile esthetics.</i> Dental Press J Orthod 2012;17(5):53-63. 6. Kokich V. <i>Esthetics and anterior tooth position: an orthodontic perspective. Part I: Crown length.</i> J Esthet Dent 1993;5(1):19-23. 7. Kokich V. <i>Esthetics and anterior tooth position: an orthodontic perspective. Part II: Vertical position.</i> J Esthet Dent 1993;5(4):174-8. 8. Kokich V. <i>Esthetics and anterior tooth position: an orthodontic perspective. Part III: Mediolateral relationships.</i> J Esthet Dent 1993;5(5):200-7.	PBL + LITERATURE REVIEW
	1442 06 25		
5.	2021 FEB 14	<i>Lecture: 'Perceive it to Treat it: A Guide to Comprehensive Esthetic Dentistry'</i>	GUEST LECTURER: DR. ABDULAZIZ M. ALTAMIMI Consultant Prosthodontist
	1442 07 02		
6.	2021 FEB 21	A. <i>Lecture:</i> Management of Patients with Missing/Abnormally Proportioned Teeth B. Recorded Lecture: Dr. Ward M. Smalley, AAO 2014: Enhancing Anchorage during Adult Orthodontics: Restorative/Prosthodontic Implants C. <i>Problem-Based Learning Case:</i> "I always wanted to have my teeth fixed"	LECTURE + CONFERENCE LECTURE + PBL
	1442 07 09		
7.	2021 FEB 28	A. <i>Problem-Based Learning Case:</i> "I always wanted to have my teeth fixed" B. <i>Lecture:</i> Melsen B. Chapter 8: Anchorage Problems, in: Adult Orthodontics. Blackwell Publishing Ltd., 2012, 132-162.	PBL + LECTURE
	1442 07 16		
8.	2021 MAR 7	<i>Lecture:</i> The Orthodontic-Periodontic Connection <i>PART-I</i> Pre-Orthod. Periodontal Therapy, Pre-Orthod. Perio. Sx: Gingival Recession & Root Coverage (Mucogingival Problems, Inadequate Attached Gingiva, Gingiva Grafting), Osseous Sx – Bone Defects/Bone Grafting, Impacted Canines, Corticotomy	GUEST LECTURER: DR. KHALID S. AL-HAMDAN Associate Professors, Periodontics
	1442 07 23		
9.	2021 MAR 14	<i>Lecture:</i> The Orthodontic-Periodontic Connection <i>PART-II</i> Missing Inter-Dental Papilla, Gummy Smile, Maxillary Midline Diastema (Frenectomy), Circumferential Supracrestal Fiberotomy	GUEST LECTURER: DR. KHALID S. AL-HAMDAN Associate Professors, Periodontics
	1442 08 01		
10.	2021 MAR 21	Orthodontic-Periodontic Relationship: 1. Ong M, Wang H. <i>Periodontic and orthodontic treatment in adults.</i> AJODO 2002;12:240-8. 2. Mathews D, Kokich V. <i>Managing treatment for the orthodontic patient with periodontal problems.</i> Semin Orthod 1997;3:21-38. 3. Kokich V. <i>Esthetics: the orthodontic-periodontic restorative connection.</i> Semin Orthod 1996;2:21-30. 4. Sharma AA, Park JH. <i>Esthetic considerations in interdental papilla: remediation and regeneration.</i> J Esthet Restor Dent 2010;22:18-28. 5. Gkantidis N, et al. <i>The orthodontic-periodontic interrelationship in integrated treatment challenges: a systematic review.</i> J Oral Rehabil 2010;37(5):377-90. 6. Shekar S, et al. <i>Periodontal considerations during orthodontic treatment.</i> Indian J Oral Health Res 2017;31-8. 7. Morris JW, et al. <i>Prevalence of gingival recession after orthodontic tooth movements.</i> AJODO 2017;151(5):851-9. 8. Capani Anni, et al. <i>Periodontic accelerated orthodontics (PAO) – a review.</i> J Clin Exp Dent. 2012;4(5):e292-e296. 9. Paolone MG, Katsas R. <i>Orthodontic-periodontal interactions: Orthodontic extrusion in interdisciplinary regenerative treatments.</i> Int Orthod 2018;16(2):217-45.	LITERATURE REVIEW GUEST LECTURER: DR. REHAM N. ALJASSER Assistant Professors, Periodontics
	1442 08 08		
11.	2021 MAR 28	TEMPORARY ANCHORAGE DEVICES 8 am – 12 pm	GUEST LECTURER: DR. TAWFIK S. ALTAMIMI Consultant Orthodontist
	1442 08 15		
12.	2021 APR 4	A. <i>Lecture:</i> LINGUAL ORTHODONTICS B. <i>Literature Review:</i> 1. Shelton AT, Hodge T, Scott P. <i>Lingual orthodontics – clinical applications and patient information.</i> Dent Update 2018;45:141-8. 2. Auluck A. <i>Lingual orthodontic treatment: what is the current evidence base?</i> J Orthod. 2013 Sep;40 Suppl 1:527-33. 3. Pappageorgiou SN, et al. <i>Lingual vs. labial fixed orthodontic appliances: systematic review and meta-analysis of treatment effects.</i> Eur J Oral Sci 2016;124(2):105-18. 4. Ata-Ali F, et al. <i>Adverse effects of lingual and buccal orthodontic techniques: A systematic review and meta-analysis.</i> AJODO 2016;149(6):820-9. 5. Mistakidis I, et al. <i>Clinical outcomes of lingual orthodontic treatment: a systematic review.</i> Eur J Orthod 2016;38(5):447-58. 6. Ata-Ali F, et al. <i>Are there differences in treatment effects between labial and lingual fixed orthodontic appliances? A systematic review and meta-analysis.</i> BMC Oral Health 2017;22:17(1):133.	GUEST LECTURER: DR. NAIF A. ALMOSA Associate Professor, Orthodontics
	1442 08 22		
13.	2021 APR 11	CLEAR ALIGNER TREATMENT (INVISALIGN®) 8 am – 12 pm	GUEST LECTURER: DR. SULIMAN Y. SHAHIN Assistant Professor, Orthodontics
	1442 08 29		
14.	2021 APR 18	A. <i>Lecture:</i> Psychosocial Issues and Adult Orthodontics B. <i>Accelerated Orthodontic Treatment:</i> 1. Hoogveen EI, et al. <i>Surgically facilitated orthodontic treatment: a systematic review.</i> AJODO 2014;145(4 Suppl):551-64. 2. Hoffmann S, et al. <i>Influence of piezotomy and osteoperforation of the alveolar process on the rate of orthodontic tooth movement: a systematic review.</i> J Orofac Orthop 2017;78(4):301-11. 3. Miles P. <i>Accelerated orthodontic treatment - what's the evidence?</i> Aust Dent J. 2017 Mar;62 Suppl 1:63-70. 4. Kacprzak A, Strzecki A. <i>Methods of accelerating orthodontic tooth movement: A review of contemporary literature.</i> Dent Med Probl 2018;55(2):197-206. 5. Aljalaa A, et al. <i>Effects of vibrational devices on orthodontic tooth movement: A systematic review.</i> AJODO 2018 Dec;154(6):768-79. 6. Baghizadeh Fimi M, Olyayee P, Homayouni A. <i>The Effect of Low-Level Laser Therapy on the Acceleration of Orthodontic Tooth Movement.</i> J Lasers Med Sci 2020;11(2):204-11.	LECTURE + LITERATURE REVIEW
	1442 09 06		
15.	2021 APR 25	NO SESSION	
16.	2021 MAY 23	RESIDENTS' CASE REPORT ANALYSIS AND SHORT PRESENTATIONS	
	1442 10 11		
17.	2021 MAY 30	FINAL EXAMINATION	
	1442 10 18		

SAMPLE OF THE ARTICLE SUMMARY SHEET

Student Name:

Date: / /

FUNCTIONAL OCCLUSION FOR THE ORTHODONTIST

Ronald H. Roth (J Clin Orthod. 1981 Jan;15(1):32-41, 44-51)

Nature of the Article

The article is the first in a four-article series written by the author to explain his diagnosis and treatment philosophy in details. It is an essay that included a brief history of how his philosophy developed, the basic concepts of the functional occlusion, and a step-by-step description of the clinical examination, diagnosis and treatment planning process.

1. History

- Recently, orthodontists became more interested in functional occlusion, and he was one of them.
- He wanted to increase the stability, make sure orthodontic treatment does no harm to the patients, and prove that with extractions we can still obtain good functional occlusion.
- Simple equilibration can't result in ideal occlusion, and a correct occlusal adjustment is time-consuming.

2. Philosophy and Rationale

- Tx objectives must include attainment of gnathologically functional occlusion, and longevity of the TMJs.
- Centric relation position is the most "ideal" or "physiologic" position for the condyles.
- CR of the mandible is a superior limit position of the condyles in the fossae with the mandible centered and at its most closed position. Many patients have problems because their mandibles are not "in centric".
- The fact that someone's occlusion is not centrally related is not, by itself, an indication for treatment. However, when a case undergoes orthodontic Tx, a goal should be intercuspatation in CR.
- CR is not a strained position, and it should be always defined as the uppermost or superiormost position.
- Many of our patients are potential problems "just lying in the weeds", waiting for us to change something.

3. Examination

1. On initial examination, the clinician should attempt to manipulate the mandible into clinical CR.
2. If the discrepancy between CR and CO is large, a mounting on a simple articulator is indicated.
3. If the mandible is difficult to manipulate, splint therapy is required.
4. TMJ should be palpated for popping or grating sounds, and muscles should be examined for tenderness.
5. The occlusion should be examined for wear facets.
6. Check the functional movements of the mandible, and measure the max. opening (normal 45~50 mm).
"You can never determine intraorally that a case is free from interferences, but it can be determined intraorally when interferences do exist".

4. Diagnosis and Treatment Planning

- Mounting cases that have CR/CO discrepancy reveals the true malocclusion in all three planes of space.
- Models mounted using true hinge-axis can be equilibrated until the overbite is the same as the CO OB.
- Cephalometric tomograms are not accurate enough to determine the condylar position.

Comments

- This article is part of the only published series by Dr. R. H. Roth about his philosophy.
- The theories and principles of the author were not supported by any citation from scientific literature, although the basis of these concepts was obtained from prosthodontic research.
- The author's claim that centric relation position is physiologic and ideal does not correlate with the belief of other practitioners who say that CR is a stable and a repeatable reference.
- The inherent inaccuracy associated with the bite registration and mounting techniques were not discussed by the author.
- Dr. Roth should be given the credit for introducing the concept of functional occlusion to the field of orthodontics and his contribution should be appreciated.

LITERATURE REVIEW/PBL ASSESSMENT OF GRADUATE STUDENT

Course **Adult Orthodontics – POS 556**

Student Name _____

Evaluation Date _____

Please, fill out the appropriate box for each item using the **number** indicated for each column that best describes the postgraduate student:

Assessment Area	Student's Grade	Grading System
1. Punctual, Prompt (attends on time)		Outstanding (A) = 4
2. Participate Actively in the Discussion		Competent (B) = 3
3. Has a Good Comprehension of the Material (understanding and analysis of the content)		Developing (C) = 2
4. Presents the Articles Well (preparation for the discussion, organization of the ideas, delivery)		Poor (D) = 1
5. Provides Appropriate Critique of the Articles (adequate application of the critique principles)		N/A = Not Applicable

Additional Comments

Name of Faculty: _____

Signature: _____

Date: _____