

SYLLABUS

COURSE: DENF 3703 Oral and Maxillofacial Radiology II
Extraoral Techniques and Basic Interpretation Skills
SEMESTER: Fall
CREDIT HOUR: 1.0

REVISED: 2001
REPRINTED: 2004

COURSE DIRECTOR: Kenneth Abramovitch, D.D.S., M.S.

GOAL

The purpose of this course is to introduce the student to some advanced aspects of oral and maxillofacial radiology. The radiographic examination plays an integral role in the diagnostic process in dentistry. The practitioner uses radiographic images to diagnose those structures which cannot be seen during the clinical evaluation. The dentist must therefore possess a sound knowledge of radiographic principles and be highly proficient in certain extraoral techniques to complement their overall diagnostic skills.

OBJECTIVES

I. RADIOGRAPHIC MANIFESTATIONS OF DENTAL CARIES

1. Describe and be able to identify on film, the radiographic appearance of the four classes of interproximal caries penetration.
2. State the appearance and problems associated with the radiographic recognition of:
 - 2.1 occlusal caries
 - 2.2 facial/lingual caries
 - 2.3 pulpal caries
 - 2.4 recurrent caries
 - 2.5 arrested caries
3. Describe how each of the following factors affects radiographic recognition of dental caries:
 - 3.1 caries to normal root ratios
 - 3.2 cervical burnout
 - 3.3 restorative materials
 - 3.4 vertical beam angulation
 - 3.5 horizontal beam angulation

II. RADIOGRAPHIC MANIFESTATIONS OF PERIODONTAL DISEASE

1. Describe the general role of radiographic images in evaluating periodontal status
2. List the limitations of the radiographic examination in detecting periodontal disease.
3. List the benefits of the radiographic examination in detecting periodontal disease.
4. Describe the radiographic appearance and be able to identify the following on radiographic examination:
 - 4.1 normal periodontium
 - 4.2 early changes noted in periodontitis
 - 4.3 bone loss: localized versus generalized
horizontal versus vertical
 - 4.4 quantification of bone loss by bone height determination
 - 4.5 bone defects
 - 4.6 furcation involvement
5. Identify and explain the details of the three (3) major local predisposing factors for periodontal disease.
 - 5.1 calculus
 - 5.2 faulty restorations
 - 5.3 food packing areas
6. Identify the local functional factors that affect periodontal disease.

7. Determine how to calculate the crown:root ratio of teeth.
8. State the radiographic features that determine if there is active periodontal disease.

III. RADIOGRAPHIC CHANGES IN PERIAPICAL DISEASE

1. Describe the radiographic change in the lamina dura associated with periapical disease.
2. Define the following terms associated with acute periapical disease and describe their radiographic features:
 - 2.1 acute apical periodontitis
 - 2.2 acute apical abscess
3. Define the following terms associated with chronic periapical disease and describe their radiographic features:
 - 3.1 apical granuloma
 - 3.2 apical cyst
 - 3.3 chronic apical abscess
 - 3.4 apical condensing osteitis
4. Recognize the radiographic pattern associated with:
 - 4.1 periapical cementoosseous dysplasia
 - 4.2 hypercementosis

IV. BASIC PRINCIPLES OF PANORAMIC RADIOGRAPHY

Principles of Image Formation

1. Describe the practical aspects of panoramic radiography by reviewing the following areas:
 - 1.1 indications
 - 1.2 advantages
 - 1.3 disadvantages
2. Describe the projection in the vertical plane of a panoramic image.
3. Describe the projection of the panoramic image in the horizontal dimension.
4. State the patient variables for determining the exposure settings (i.e., kilovoltage or milliamperage).

Image Layer Analysis

5. Describe the relative path of rotation of the radiation source, and the cassette carriage as they rotate around the patient's head.
6. Describe the movement of the film cassette relative to the cassette carriage during a panoramic exposure.
7. Define focal trough.

7.1 list the factors that affect the size and shape of the focal trough.

8. Describe the movement pattern of the x-ray beam during panoramic exposure.

Concepts of Image Formation

9. Recognize the distortion pattern of creating a flattened image of a curved surface. (Concept 1)
10. State which midline structures project as single images and which midline structures project as double images. (Concept 2)
11. List the five properties of double images. (Concept 3)
12. Describe how ghost images project on a panoramic radiograph. (Concept 3)
13. List the six characteristics of ghost images. (Concept 3)
14. List prominent soft tissue shadows present on the panoramic image. (Concept 4)
15. Recognize the projection pattern of the pharyngeal airspaces, nasal and paranasal airspaces and the palatoglossal airspace. (Concept 5)
16. Identify the artifacts created by superimpositions of hard tissues, soft tissues and airspaces on the panoramic image. (Concept 6)
17. State the benefit of imaging the entire dentition on a single panoramic projection. (Concept 7)

Recognition of Basic Anatomy

18. Identify the anatomy on a panoramic radiograph listed in the 3703 monograph.

V. TECHNICAL ASPECTS OF PANORAMIC RADIOGRAPHY

1. List the procedures that are required or are helpful in preparing a patient for a panoramic radiograph.
2. List the instructions that each patient should be given prior to exposing a panoramic radiograph.

VI. RECOGNITION OF PANORAMIC ERRORS ASSOCIATED WITH PATIENT POSITIONING

1. Describe the resulting error on a panoramic film in each of the following situations where the patient is improperly positioned.
 - 1.1 mid-sagittal plane off-center
 - 1.2 head rotated
 - 1.3 patient's chin too low
 - 1.4 patient's chin too high
 - 1.5 patient slumped while sitting or standing
 - 1.6 positioning a patient's jaws anterior to the focal trough.
 - 1.7 positioning a patient's jaws posterior to the focal trough.

VII. RECOGNITION OF ERRORS ASSOCIATED WITH PANORAMIC TECHNIQUE

1. State the possible errors that will cause a low-density film (one that is too light).
2. State the possible errors that will cause a high-density film (too dark).
3. Describe the most likely cause for the following errors on panoramic films:
 - 3.1 vertical white lines
 - 3.2 streaking, splotches, specks
 - 3.3 smudge marks, or "naked tree" streaks
4. Identify the following errors when demonstrated on a panoramic radiograph. State the cause and correction of each problem.
 - 4.1 radiopaque ghost obscuring the lower center of the film
 - 4.2 radiopaque images or ghosts obscuring either side of center or the lower center of the film
 - 4.3 radiolucent shadow obscuring the apices of maxillary teeth
 - 4.4 blurred and wide anterior teeth
 - 4.5 blurred and thin anterior teeth
 - 4.6 radiopaque palate obscures apices of maxillary teeth
 - 4.7 flat or reversed occlusal curvature ("smile line")
 - 4.8 exaggerated occlusal curvature ("smile line")
 - 4.9 condyles and/or lower border of chin projecting off edge of the film
 - 4.10 unequal proportions of contralateral posterior teeth

VIII. DEVELOPMENTAL AND ACQUIRED ABNORMALITIES OF TEETH

1. Define the following terms with regard to supernumerary teeth:
 - 1.1 mesiodens
 - 1.2 paramolar
 - 1.3 distodens (distomolar)
 - 1.4 peridens
2. Explain the significance of supernumerary teeth from a clinical standpoint.
3. Define the following terms with regard to developmentally missing teeth:
 - 3.1 hypodontia
 - 3.2 oligodontia
 - 3.3 anodontia
4. Name the most commonly missing teeth.
5. Define and briefly describe the radiographic features of these alterations associated with tooth size.
 - 5.1 macrodontia
 - 5.2 microdontia
6. Define and briefly describe the radiographic features of these alterations associated with tooth shape.

- 6.1 gemination (schizodontism)
 - 6.2 fusion (syndontism)
 - 6.3 concrescence
 - 6.4 dilaceration
 - 6.5 taurodontism
 - 6.6 supernumerary roots
 - 6.7 enamel pearls
 - 6.8 dens invaginatus (dens in dente)
 - 6.9 dens evaginatus (Leong's premolar/Leong's tubercle)
7. Define and briefly describe the radiographic features of these alterations associated with tooth structure.
- 7.1 enamel hypoplasia
 - 7.2 amelogenesis imperfecta
 - 7.2.1 hypomature
 - 7.2.2 hypoplastic
 - 7.2.3 hypomineralized
 - 7.3 dentinogenesis imperfecta
 - 7.4 dentinal dysplasia
 - 7.5 regional odontodysplasia
8. Define and briefly describe the radiographic features of these alterations associated with acquired defects of teeth.
- 8.1 attrition
 - 8.2 abrasion
 - 8.3 erosion
9. Define and briefly describe the radiographic features of these alterations associated with tooth eruption.
- 9.1 drift and migration
 - 9.2 translocation (transposition) and ectopic eruption
 - 9.3 embedded versus impacted teeth

IX. EXTRAORAL RADIOGRAPHIC ANATOMY

- 1. For each of the following extraoral views, identify the anatomic landmarks specific to that view, as outlined in the Appendix for this course:
 - 1.1 lateral oblique radiograph of mandible (ramus)
 - 1.2 lateral skull radiograph/cephalogram
 - 1.3 posteroanterior radiograph
 - 1.4 Waters' (occipitomeatal) radiograph
 - 1.5 submentovertebral radiograph

X. EXTRAORAL IMAGING APPARATUS

- 1. List the function of the intensifying screen used for extraoral radiology.
- 2. State the function of the cassette for extraoral radiography.

3. List and describe the function of each component layer in an intensifying screen.
4. State the relation between film speed and image resolution.
5. State what safelighting modification for the darkroom may be required when processing films used in with intensifying screens.
6. List two advantages of using rare-earth phosphors as compared to calcium tungstate phosphors in an intensifying screen.
7. List the composition and function of an x-ray grid.
8. State the difference between a standard grid versus a focused grid.
9. State the significance of the grid ratio.
10. State the adjustment to exposure factors that must be made when using a grid.

XI. TYPES OF EXTRAORAL RADIOGRAPHIC EXAMINATIONS

1. Describe the rationale and technique for the lateral oblique mandibular projection. This description for the mandibular body and ramus variations should include the following areas:
 - 1.1 anatomic area or structures to be covered
 - 1.2 head position and film placement
 - 1.3 projection of the central ray
2. State why a lateral oblique mandibular ramus projection could be useful in patients unable to tolerate an intraoral film.
3. State why the mandible should be protruded in the lateral oblique mandibular ramus projection.
4. Name the anatomical landmarks that are used to determine the Frankfurt line and the canthomeatal line.
5. Describe the rationale and technique for the posteroanterior skull projection. This description should include the following areas:
 - 5.1 anatomic area or structures to be covered
 - 5.2 head position and film placement
 - 5.3 projection of the central ray
6. State how a lateral cephalometric skull projection is differentiated from the lateral skull projection.
7. State the technique used to reveal the soft tissue outline of the patient's face in the lateral cephalometric projection.
8. Describe the rationale and technique for the lateral skull projection. This description should include the following areas:
 - 8.1 anatomic area or structures to be covered
 - 8.2 head position and film placement

- 8.3 projection of the central ray
- 9. Describe the rationale and technique for the Waters' (occipitontal) skull projection. This description should include the following areas:
 - 9.1 anatomic area or structures to be covered
 - 9.2 head position and film placement
 - 9.3 projection of the central ray
- 10. Describe the rationale and technique for the submentovertex (basilar) skull projection. This description should include the following areas:
- 11. State the advantage of reducing the exposure parameters by one third of that normally used in the submentovertex projection.

XII. OCCLUSAL RADIOGRAPHY

- 1. List three indications for an occlusal radiograph, and state six cases in which it would be especially useful.
- 2. Describe the following occlusal projections with respect to a) image field, b) film placement, c) projection of central x-ray and d) point of entry:
 - 2.1 Maxillary
 - 2.1.1 standard cross-sectional
 - 2.1.2 lateral cross-sectional
 - 2.1.3 anterior topographical
 - 2.2 Mandibular
 - 2.2.1 standard cross-sectional
 - 2.2.2 lateral cross-sectional
 - 2.1.3 anterior topographical

XIII. SPECIALIZED RADIOGRAPHIC TECHNIQUES

Tomography

- 1. Describe how a sharp image layer is produced in conventional tomography.
- 2. Define the factors affecting the thickness of the image layer.
- 3. Define the factors affecting the sharpness of the image layer.
- 4. List the different types of x-ray tube and film movement used in conventional tomography and state why these different types exist.
- 5. Differentiate between the two different machine designs' operating principles used in conventional tomography.
- 6. State two examples of the use of tomography in dental radiology.

Computed Tomography

- 7. List the four functional components of a computed tomography (CT) system.

8. Describe the function and makeup of the radiation detector in computed tomography.
9. Describe how tissue density is produced on a computed tomography image.
10. Define a Hounsfield unit (HU).
11. State the density of the following tissues on a computed tomography image:
 - 11.1 air spaces
 - 11.2 soft tissue
 - 11.3 bone
12. State the function of a pixel in computed tomography image resolution.
13. State the function of a voxel in computed tomography image resolution.
14. List the advantages of a CT imaging system over conventional radiography with a silver halide film emulsion imaging system.
15. List the recent advances in CT scanner design.

Digital Imaging

16. Describe how X-radiation energy gets transformed into a digital image.
17. Define a charge-coupled device (i.e., CCD) and state its function in obtaining a digital image.
18. List four advantages of digital imaging.
19. List three disadvantages of digital imaging.
20. State five methods of image manipulation in digital radiography.

Nuclear Medicine

21. List the two types of tissues that are good candidates for nuclear scans when studying dental pathology.
22. List the two different types of radiopharmaceuticals used in nuclear medicine.
23. List four advantages for using technetium as a radioisotope for nuclear medicine scans.
24. List the advantage of using Ga-citrate as a radiopharmaceutical in nuclear medicine.

Magnetic Resonance Imaging

25. Define nuclear precession as it relates to M.R.I.
26. State the significance of water in generating MR images.
27. Describe how protons are excited to generate an MR image.
28. Define T1 relaxation time and state which tissues are best imaged with this timing sequence.

29. Define T2 relaxation time and state which tissues are best imaged with this timing sequence.
30. List four advantages of MRI in diagnostic imaging.
31. List three disadvantages of MRI as a diagnostic imaging procedure.
32. List two absolute contraindications for an MRI scan.
33. Describe magnetic resonance imaging (MRI).
34. State the advantage of MRI as compared to conventional radiographic techniques.

XIV. SPECIALIZED DIAGNOSTIC EXAMINATIONS

Sialography

1. Define sialography.
2. State the approximate filling volumes of dye for the parotid and submandibular salivary glands.
3. List three indices that help determine when a salivary gland is fully injected with a contrast dye.
4. State the advantage(s) of the 5 different radiographic projections that can be used for sialographic examinations.
5. State the significance of taking salivary gland radiographs shortly after the cannula is removed during sialography.
6. List three radiographic findings that can be interpreted from sialograms.
7. Compare the advantages and disadvantages of nuclear scans to sialography for diagnostic evaluations of the major salivary glands.

Arthrography

8. Define arthrography.
9. State the indications for TMJ arthrography.
10. List the contraindications and risks to performing TMJ arthrography.
11. List four side effects to TMJ arthrography.
12. State the pertinent radiographic findings that can be interpreted about meniscal position and integrity from TMJ arthrograms.

RESOURCES

I. Media Resources

A. Printed media

1. Required textbook

White, S.C. and Pharoah, M.J.
Oral Radiology: Principles and Interpretation, 5th Ed.
Mosby, Inc., 2004

Langland, O.E., Langlais, R.P. and Preece, J.W.
Principles of Dental Imaging, 2nd Ed.
Williams & Wilkins, 2002

Langlais, R.P.
Exercises in Oral Radiography and Interpretation, 4th Ed.
W.B. Saunders, 2004, 381p.

2. Supplemental references

Successful Panoramic Radiography
Eastman Kodak Company, 1991
(available through Section of Radiology)

Monograph

Kenneth Abramovitch, DDS MS
Oral and Maxillofacial Radiology II
University of Texas Dental Branch, 1996

II. Human Resources

Kenneth Abramovitch, DDS, MS
Phone: 713-500-4109 (Room 1.072C)
Email: Kenneth.Abramovitch@uth.tmc.edu

Course Director

Inga-Lill Leon, CDA, LRT
Phone: 713-500-4114 (Room 1.072B)
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Lab Coordinator

Lisa P. Thomas, DDS
Phone: 713-500-4112 (Room 212A)
Email: Lisa.P.Thomas@uth.tmc.edu

Anita B. Rodriguez, CDA
Phone: 713-500-4043 (Room 1.072)
Email: Anita.B.Rodriguez@uth.tmc.edu

Sr. Support Specialist

STUDY PLANS AND REQUIREMENTS

This course is to be completed in the fall semester of the Third Year. While this course utilizes the textbook, *Oral Radiology: Principles and Interpretation*, 5th Ed. (2004) by White, S.C. and Pharoah, M.J., its sequence differs somewhat from the text. In addition the textbook, *Principles of Dental Imaging*, 2nd Ed. (2002) by Langland, O.E., Langlais, R.P., and Preece, J.W. also has appropriate sections that serve as reference literature for this course.

ATTENDANCE

You must attend all lectures and the lab sessions to which you are assigned. Lab assignments will be made during the semester. Punctuality is essential; we have limited facilities and the scheduling consequently is complex. We therefore regret that the laboratory sessions cannot be re-assigned. The lab sessions are one hour each but there is also a scheduled "take home" assignment.

You will be penalized for any unexcused absence as stipulated in the evaluation methods. Students must also be on time. Late arrivals are disruptive. Consequently students arriving later than 10 minutes after the hour will be counted as an unexcused absence.

The schedules for the lectures and lab sessions are listed on the following page. All laboratory sessions will be held in the Radiology Clinic area.

To prepare for this course:

1. Review the objectives.
2. Study the appropriate sections of the two reference textbooks and answer all objectives.
3. Review the anatomic landmarks on the radiographic views taken during your laboratory sessions.
4. Pay particular attention to all illustrations found in these sections of your text.

LABORATORIES

LAB #1 Each lab group will be subdivided into smaller working groups of four students. Group assignments are listed on page 16 of the syllabus. Each group will then expose and label the following radiographs: 1) Lateral Skull; 2) Posteroanterior; 3) Lateral Oblique; 4) Water's View.

You will be expected to turn in the labeled radiographs within one week of your scheduled Lab 1 period in order to receive credit.

LAB #2 Each lab group will be subdivided into working groups of four students. Each group of students will be responsible for exposing, developing and evaluating the following occlusal views: 1) Maxillary anterior cross-sectional; 2) Maxillary anterior topographical; 3) Maxillary lateral cross-sectional; 4) Mandibular anterior cross-sectional; 5) Mandibular anterior topographical; 6) Mandibular lateral cross-sectional.

DENF 3703 ORAL AND MAXILLOFACIAL RADIOLOGY II
2004 Fall Semester Schedule

Day/Time: Tuesdays, 11-11:50 am; Room 132 for all lectures. See specific day for lab hours.
 Final Examination: Thursday, Dec. 9, 10 - 11:50 pm – Room 207

DATE	LECTURES
Aug 17	Radiographic Manifestations in Dental Caries
Aug 24	Radiographic Manifestations in Periodontal Disease
Aug 31	Radiographic Changes in Periapical Disease
Sep 07	Panoramic Radiography - Technique
Sep 14	Panoramic Radiography - Anatomic Landmarks
Sep 21	Panoramic Radiography - Handling, Exposure & Processing Errors
Sep 28	Developmental and Acquired Abnormalities of Teeth - Part I
Oct 05	Developmental and Acquired Abnormalities of Teeth - Part II
Oct 12	MID-TERM EXAMINATION (Room 207)
Oct 19	Skull Radiography
Thu, Oct 21 11-12:00	Lab I / Group 1 - Extraoral Views (Radiology Clinic)
Tue, Oct 26 11-12:00	Lab I / Group 2 - Extraoral Views (Radiology Clinic)
Thu, Oct 28 9:00 - 10:00 10:30 - 11:30	Lab I / Group 3 - Extraoral Views (Radiology Clinic) Lab I / Group 4 - Extraoral Views (Radiology Clinic)
Tue, Nov 02 11-12:00	Lab I / Group 5 - Extraoral Views (Radiology Clinic)
Nov 09	Occlusal Radiography
Thu, Nov 11 9:00 - 10:00 10:30 - 11:30	Lab II / Group 1 - Occlusal Views (Radiology Clinic) Lab II / Group 2 - Occlusal Views (Radiology Clinic)
Tue, Nov 16 11-12:00	Lab II / Group 3 - Occlusal Views (Radiology Clinic)
Thu, Nov 18 9:00 - 10:00 10:30 - 11:30	Lab II / Group 4 - Occlusal Views (Radiology Clinic) Lab II / Group 5 - Occlusal Views (Radiology Clinic)
Nov 23	Specialized Imaging Techniques I
Nov 30	Specialized Imaging Techniques II
Thu, Dec 9	FINAL EXAMINATION 10-11:50 am, Room 207

EVALUATION METHODS

LECTURE

There will be a mid-term and a comprehensive final examination for this course. The material on the examinations will include all information pertinent to Oral and Maxillofacial Radiology as covered in the lecture series, associated reference pages and the objectives as listed in this syllabus.

LABORATORY

Each group of students will be responsible for completing one set of skull/mandibular radiographs consisting of a lateral skull, PA skull, Waters' skull and lateral oblique of the mandible view. Each radiographic view should be neatly labeled with the appropriate anatomical landmarks as stipulated in the monograph. The labeled radiographs must be turned into the Radiology Sr. Support Specialist within one week of the scheduled lab period, in order to receive credit. Assigned student groups will also be responsible for exposing and formally evaluating a set of maxillary and mandibular occlusal radiographs. Students must attend the lab period to which they have been assigned by the Office of Academic Affairs. If a student cannot attend an assigned lab period due to medical reasons, they may be able to switch a lab period with a consenting classmate. Such changes must be approved by the Lab Coordinator no later than six (6) hours prior to the scheduled lab. In all lab sessions, students are expected to look and act in a professional manner. This includes following the clinic dress code. Proper clinical attire is listed in the Dental Branch Clinic Manual.

ATTENDANCE

Attendance is mandatory for all lectures and lab sessions. A student will be penalized for any lecture or lab session missed without an excused absence as determined by the Student Guide to Academic Studies. Students must also be on time. Late arrivals are disruptive. Consequently students arriving later than 10 minutes after the hour will be counted as absent (unexcused).

GRADES

The course grade will be assigned according to the following criteria:

Lecture: (70% of final grade)		Lab: (30% of final grade)	
Mid-term exam	40%	Lab Exercises I and II	80%
Final comprehensive exam	50%	Attendance	20%
Attendance	10%		
<hr/> Total	100%	<hr/> Total	100%

DENF 3703 Lab Group Assignments

It is mandatory that group assignments are followed.

GROUP 1 Oct 21 st - 11:00 am & Nov 11 th - 9:00 am	GROUP 2 Oct 26 th - 11:00 am & Nov 11 th - 10:30 am	GROUP 3 Oct 28 th - 9:00 am & Nov 16 th - 11:00 am
ALEXANDER, Jason	DOAN, Duc "Duke"	HOLDER, Zach
BAKER, Chase	ELRAHEB, Dany	HOLUBEC-SORSBY, Karen
BARRERA, Laura	FARRAR, Ashley	HOWELL, Kacey
BRANCA, Nicole	FLESHMAN, Brandon	HUSAN, Aisha
BUESO-MENDOZA, Elisa	FOSSUM, Steven	INCRAPER, Angela
CADDELL, Travis	FUENTES, Robert	JACKSON, Tracie
CHADWICK, Douglas	GARRETT, Bryan	KAYDA, Erica Marie
CHENG, Wendy	GARZA, Krystle	KAZEMYAN, Souzan
CHOW, Nielofar	GAUR, Arti	KHAN, Irum Kirmani
CHUNG, Deborah	GOR, Troy	LAM, Doanh Kim
COLLINS, Dath	HEBERT-SCHOENER, Stacey	LEONHART, Victoria
CREED, Benjamin	HERNANDEZ, Claudia	LEONHART, Ryan
GROUP 4 Oct 28 th - 10:30 am & Nov 18 th - 9:00 am	GROUP 5 Nov 02 nd - 11:00 am & Nov 18 th - 10:30 am	
LE, Emily Van Khanh	ROSSON, Andrew	
LOBRE, Wendy	SALAZAR, Armando	
LOZANO, Angelica	SALEEM, Asra	
LUAN, Alice	STEVENS, Michael	
MANDHANI, Anju	STIRNEMAN, Jordan	
MARES, Berenisse Edith	STUDERUS, Scott	
MCGRORY, John Kevin	SVETLIK, Justin	
MIELECKI, Jennifer	TJENG, Vivian	
MISTRY, Manoj	TRAN, Bao Ching	
NGUYEN, Huy	TUMMALA, Chiranjeevi	
NGUYEN, Tracy Chau	VIRGEN, Aurora	
ORFANOS, John	WALKER, Holly	
PHIPPS, Garrett		
REVEL, Erica		
RODRIGUEZ, Candy		
ROME, Ginger		

