

[Keywords] Oral and maxillofacial diseases, imaging, examination, diagnosis, pathology, quantitative image analysis

[Academics] Eiji Nakayama

[Course aims]

The aims of this class are:

1. To understand a variety of disease patterns in the oral and maxillofacial region and to understand how the diseases are visualized analyzed quantitatively on diagnostic images.
2. To acquire the ability to write a diagnostic imaging report for a clinical case by understanding the characteristics of various imaging modalities.
3. To understand basic histopathologic analysis, and to improve the diagnostic accuracy for diseases in the oral and maxillofacial region by comparing image findings with histopathologic information.
4. To understand radiation physics and radiation biology, and acquire the basics of radiation dose management.

[Course objectives]

The goals of this course are for students to be able to:

- (1) Explain the types and characteristics of diseases in the oral and maxillofacial region.
- (2) Explain the characteristics of various diagnostic imaging modalities.
- (3) Explain the image findings for diseases in the oral and maxillofacial region.
- (4) Conduct a basic quantitative analysis by using image data for the human body.
- (5) Explain the diagnostic image findings of diseases in the oral and maxillofacial region by comparing them with basic histopathologic findings.
- (6) Conduct common image processing and quantitative measurement of images of the human body, and identify a significant factor by statistical analysis.
- (7) Perform a radiographic examination, X-ray CT, and an X-ray contrast radiology examination alone and prepare the imaging diagnostic report.

[Course content]

| Class | Theme | Content | Academics |
|-------|--|---------|---------------|
| 1 | Lecture on disease patterns in the oral and maxillofacial region and a seminar on the practice of imaging anatomical analysis | | Eiji Nakayama |
| 2 | Lecture and seminar on the various diagnostic imaging modalities, | | Eiji Nakayama |
| 3 | Lecture and seminar on basic quantitative analysis using image data for the human body | | Eiji Nakayama |
| 4 | Seminar on comparison of the diagnosis image findings with the basic histopathologic findings in the oral and maxillofacial region | | Eiji Nakayama |
| 5 | Seminar on image processing and quantitative measurement of the human body and the statistical analysis for quantitative data | | Eiji Nakayama |
| 6 | Lecture on the physical characteristics and biologic effects of ionizing radiation and practice on radiation dose | | Eiji Nakayama |

| Class | Theme | Content | Academics |
|-------|---|---------|---------------|
| | management | | |
| 7 | Practice of performing the diagnostic imaging examination and diagnostic imaging report writing. | | Eiji Nakayama |
| 8 | Practice of case study and case presentation at a conference concerning the imaging diagnosis | | Eiji Nakayama |
| 9 | Simulation of a presentation at an academic meeting and article publication regarding the imaging diagnosis | | Eiji Nakayama |

[Grading policies]

Your overall grade in class will be decided based on class attendance and reports.

[Remarks]

Textbook: Students will be informed which text book to use

Reference book: Same as above

Remarks: Eiji Nakayama

[Preparation for course]

Students must understand the course objectives and prepare properly for classes.