

Edinburgh Imaging

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Cardiovascular Imaging

Semester 2 / January

10 Credits

Each Course is composed of Modules & Activities.

Modules:

Cardiac basics	IMSc
CT coronary angiography	IMSc
Imaging of ischaemic heart disease	IMSc
Cardiac and pericardial anomalies	IMSc
Vascular imaging	IMSc
Pulmonary vascular imaging	IMSc

Each Module is composed of Lectures, Reading Lists, MCQ self-assessments, & Discussion Boards.

These Modules are taught on the following Programmes, or are incorporated into blended Courses which teach students enrolled outwith the Edinburgh Imaging Academy:

- IMSc - Imaging programme

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Modules include:

Cardiac basics:

Cardiothoracic radiology: overview

CT coronary angiography:

Coronary CT calcium scoring

Cardiac CT overview

Cardiac CT: image acquisition

Imaging of ischaemic heart disease:

MR & ischaemic heart disease

CT & ischaemic heart disease

Cardiac and pericardial anomalies:

Cardiovascular anomalies

Vascular imaging:

CT & MRI imaging of the aorta

Pulmonary vascular imaging:

Pulmonary embolism

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Cardiac basics

Lecture 1

Title: Cardiothoracic radiology: overview

Description: Radiology of the chest: CXr, CT, MR, Nuc Med. Common chest pathologies

Author(s): Prof Edwin van Beek

Editor(s): Dr Andrew Farrall

Learning Objectives

- Give an overview of different chest imaging modalities
- Describe how these different modalities are applied
- Discuss examples of common chest pathologies

CT coronary angiography

Lecture 1

Title: Coronary CT calcium scoring

Description: CAC, scan protocols, scoring CT scans; interpretation

Author(s): Dr Saeed Mirsadraee

Editor(s): Dr Andrew Farrall

Learning Objectives

- State the significance of coronary artery calcification
- Describe a scan protocol
- Score a coronary CT scan
- Interpret the calculated scores

Lecture 2

Title: Cardiac CT: overview

Description: Cardiac CT & CT angiography: technology, strengths & limitations

Author(s): Prof Edwin J.R. van Beek

Editor(s): Dr Andrew Farrall

Learning Objectives

- Describe basic CT principles
- Explain the challenges of cardiac CT / CT angiography
- State the principles of cardiac CTA
- Discuss ECG gating: prospective or retrospective
- Explain considerations around radiation dose

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CT coronary angiography contd..

Lecture 3

Title: Cardiac CT: image acquisition

Description: Cardiac CT & CT angiography: patient preparation, clinical protocols, role of contrast, image acquisition

Author(s): Prof Edwin J.R. van Beek

Editor(s): Dr Andrew Farrall

Learning Objectives

- Describe patient preparation
- Discuss clinical protocol selection
- Explain the role of a pre-contrast scan
- Outline a contrast administration protocol
- Give an overview of cardiac CT angiography acquisition

Imaging of ischaemic heart disease

Lecture 1

Title: MR & ischaemic heart disease

Description: Overview of ischaemic heart disease, SPECT imaging & the rise of MR techniques.

Author(s): Prof Edwin J.R. van Beek

Editor(s): Dr Andrew Farrall

Learning Objectives

- Give an overview of myocardial infarct (MI) pathology
- Describe modalities for investigating IHD
- Outline limitations of SPECT
- Outline benefits & limitations of MR imaging
- Discuss applications of MR imaging in IHD / MI e.g.
 - Infarct size evaluation
 - Myocardial viability assessment
 - Perfusion determination

Lecture 2

Title: CT & ischaemic heart disease

Description: Overview of CT techniques in the evaluation of ischaemic heart disease.

Author(s): Prof Edwin J.R. van Beek

Editor(s): Dr Andrew Farrall

Learning Objectives

- Give an overview of CT development for coronary angiography
- Describe coronary artery anomalies
- Outline CT assessment of coronary plaque
- Outline CT assessment of cardiac viability
- Discuss the global cardiac CT process

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Cardiac and pericardial anomalies

Lecture 1

Title: Cardiovascular anomalies

Description: Non-invasive imaging of coronary artery anomalies

Author(s): Dr Saeed Mirsadraee

Editor(s): Dr Andrew Farrall

Learning Objectives

- State frequency of coronary artery anomalies
- List associations with anomalous coronary arteries
- Describe normal coronary artery anatomy
- Classify various coronary artery anomalies
- State the significance of coronary artery anomalies

Vascular imaging

Lecture 1

Title: CT & MRI Imaging of the Aorta

Description: Imaging aortic anatomy, aortic aneurysm, & acute aortic syndromes

Author(s): Dr Christopher James Rofe

Editor(s): Dr Saeed Mirsadraee, Dr Andrew Farrall

Learning Objectives

- List key features for review on aortic imaging
- Discuss the role of multi-detector CT in aortic imaging
- Compare multi-detector CT with MR imaging strategies
- State key anatomical aortic divisions
- Describe imaging of:
 - Aortic aneurysm
 - Acute aortic syndromes
 - Dissection
 - Intramural haematoma
 - Penetrating ulcer

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Pulmonary vascular imaging

Lecture 1

Title: Pulmonary embolism

Description: Pulmonary embolism imaging techniques

Author(s): Prof Edwin van Beek

Editor(s): Dr Andrew Farrall

Learning Objectives

- Explain the importance of diagnosing pulmonary embolism
- Describe different diagnostic tests which allow diagnosis of pulmonary embolism
- Discuss diagnostic management pathways which minimise patient risk & optimise workflow