

Category (科目区分)	Cluster of Organ Development and Regenerative Systems		
Course Title (授業科目名)	Cardiac, vascular regeneration, practical training		
Instructors (担当者名)	Hiroyuki Nakajima	Academic Year (配当年次)	1,2
Required course / Elective Course (必修/選択)	Elective Course	Credits (単位数)	1
Class Format (授業形態)	Lecture		
Schedule (開講期間)	Students will be notified by email after course registration.		
Class Date/Period (開講曜日・時間)	Students will be notified by email after course registration.		
Course Outline/ Course Objectives (授業の概要・到達目標)			
<p>Course Outline</p> <p>1-2 Surgical treatment of severe heart failure due to cardiomyopathy and other conditions, from left ventriculoplasty to assisted artificial heart and heart transplantation, will be described. In addition, regenerative medicine for myocardium and valves using tissue engineering will be reviewed.</p> <p>3-4 Diagnosis and treatment of peripheral vascular occlusive diseases of the lower extremities will be outlined, especially details of surgical treatment and gene therapy.</p> <p>5-6 Vascular regeneration using tissue engineering will be explained.</p> <p>7-8 The molecular mechanisms of heart failure, a condition with a particularly poor prognosis among cardiovascular diseases, will be explained in detail, and the possibility of new heart failure treatments based on these mechanisms will be explored.</p> <p>Course Objectives</p> <p>The purpose of this course is to learn about the current status and development of regenerative medicine in the field of cardiovascular medicine.</p>			
Course Planning (授業計画)			
	Course Outline/ Course Objectives (授業の概要及び到達目標) (Contents of Class) (授業内容)	Instructor (担当教員名)	Department (講座名) Class Room [実施場所]
1	Surgery for cardiovascular disease	Hiroyuki Nakajima Daichi Takagi	Department of cardiovascular surgery [on-line/on-demand]
2			
3			
4	Review of Vascular Surgery		
5			
6	Regeneration of blood vessels		
7	Pathogenesis of heart failure and its application to therapy	Hiroyuki Watanabe	Department of cardiology [Conference room of cardiology department]
8			
Grading Criteria (成績評価の基準と方法)			
Evaluation will be based on attendance and submitted reports.			
Contact Information (問い合わせ先(氏名, メールアドレス等))			
Name: Hiroyuki Nakajima / E-mail: cvs@cvs.med.akita-u.ac.jp			
Comment (その他特記事項)			
<p>For working graduate students who are unable to attend the practical training due to work commitments, the schedule will be adjusted.</p> <p>Textbook and references: Kirklin/Barratt-Boyes Cardiac Surgery, 4th ed.</p> <p>Self-study time: It is desirable to use reference materials after the course in order to deepen understanding of the contents.</p>			