

## 2024 Akita University Faculty of Medicine Syllabus

<b>Category</b>	: 臨床医学 III
<b>Course Title</b>	: Anesthesia and Intensive Care Medicine
<b>Eligible Students</b>	: grade 4 Related Course
<b>Code</b>	: 71633024
<b>Schedule</b>	: week 11 ~ week 12
<b>Credits</b>	: 0.5

### 1. Lead Instructor

Yukitoshi Niiyama ( 新山 幸俊 ) (Professor, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6172, Office Hour: 8:30 - 17:00)

### 2. Instructors

Yukitoshi Niiyama ( 新山 幸俊 ) (Professor, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6172, Office Hour: 8:30 - 17:00)

Tetsu Kimura ( 木村 哲 ) (Associate Professor, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6173, Office Hour: 8:30 - 17:00)

Akira Nemoto ( 根本 晃 ) (Lecturer, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6175, Office Hour: 8:30 - 17:00)

Koji Sato ( 佐藤 浩司 ) (Assistant Professor, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6175, Office Hour: 8:30 - 17:00)

Natsuko Yamamoto ( 山本 夏子 ) (Assistant Professor, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6175, Office Hour: 8:30 - 17:00)

Yuta Horikoshi ( 堀越 雄太 ) (Assistant Professor, Dept. of Emergency and Intensive care ( 救急・集中治療医学講座 ), 6175, Office Hour: 8:30 - 17:00)

Ayano Sekigawa ( 関川 綾乃 ) (Medical Doctor, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6175, Office Hour: 8:30 - 17:00)

Chika Kuriyagawa ( 厨川 千香 ) (Medical Doctor, Dept. of Anesthesiology and Intensive Care ( 麻醉・蘇生・疼痛管理学講座 ), 6175, Office Hour: 8:30 - 17:00)

Yumi Koshimura ( 越村 裕美 ) (Part-time Lecturer, Part-time Lecturer, Dept. of Anesthesiology, Akita-City Hospital ( 非常勤講師 ), 6175, Office Hour: 8:30 - 17:00)

### 3. Course Description Outline(Course Objectives)

Aim: This course introduces the basics of general anesthesia and local anesthesia, the knowledges and skills necessary for anesthesia management are widely useful in general medical care, and acquire the motivation and attitude to continue self-improvement for a lifetime to students taking this course ( 1-1 ~ 1-2 , 2-1 ~ 2-3 , 2-6 ~ 2-7 , 3-1 ~ 3-7 , 4-1 ~ 4-8 , 5-1 ~ 5-5 , 6-1 ~ 6-2 ) .

Summary: The goals of this course are to

1. be able to explain the concept and type of anesthesia and the biological reaction associated with anesthesia / surgery ( 3-1 ~ 3-7 , 2-1 ~ 2-8 ) .
2. be able to explain the indications, contraindications, methods, and complications of inhalation anesthesia and intravenous anesthesia.
3. be able to explain the types of neuromuscular relaxants and the principles of use ( 3-1 ~ 3-2 , 4-1 ~ 4-4 ) .
4. be able to explain various airway management methods including tracheal intubation ( 3-1 ~ 3-2 , 4-1 ~ 4-4 ) .
5. be able to explain monitoring methods for safe anesthesia, important abnormal findings and coping strategies ( 3-1 ~ 3-2 , 3-5 , 4-1 ~ 4-7 ) .
6. be able to explain respiratory and circulatory management for safe anesthesia management ( 3-1 ~ 3-2 , 4-1 ~ 4-4 ) .
7. be able to explain arterial blood gas analysis and acid-base balance ( 3-1 ~ 3-2 , 4-1 ~ 4-4 ) .
8. be able to explain perioperative infusion and blood transfusion therapy ( 3-1 ~ 3-2 , 4-1 ~ 4-4 ) .
9. be able to explain the characteristics of pain and how to deal with it ( 3-1 ~ 3-4 , 4-1 ~ 4-4 , 5-1 ~ 5-3 ) .
10. be able to explain the characteristics of pregnant women and anesthesia management ( 3-1 ~ 3-4 , 4-1 ~ 4-4 ) .
11. be able to explain painless labor ( 3-1 ~ 3-4 , 4-1 ~ 4-4 ) .
12. be able to explain the characteristics of children and anesthesia management ( 3-1 ~ 3-4 , 4-1 ~ 4-4 ) .

13. be able to explain the ethics and medical behavior necessary as a doctor in an environment where the patient loses consciousness and cannot communicate ( 1-1 ~ 1-2 , 2-1 ~ 2-8 ) .
14. be able to explain the measures to be taken when anesthesia-related complications occur based on the concept of medical safety ( 3-4 ~ 3-7 , 4-5 ~ 4-7 ) .
15. be able to explain recent evidence and guidelines for anesthesia and perioperative management ( 3-3 , 4-3 ) .
16. be able to explain palliative care. (1-1 ~ 1-2, 3-1 ~ 3-4, 4-1 ~ 4-4)
17. learn related professionalism ( 1-1 ~ 1-2 , 2-1 ~ 2-8 ) .

ねらい： 全身麻酔，局所麻酔の基本を学ぶ．麻酔管理に必要な知識，技術は広く医療全般に有用であることを理解し，生涯にわたり自己研鑽を続ける意欲と態度を獲得する ( 1-1 ~ 1-2 , 2-1 ~ 2-3 , 2-6 ~ 2-7 , 3-1 ~ 3-7 , 4-1 ~ 4-8 , 5-1 ~ 5-5 , 6-1 ~ 6-2 )

概要：以下の項目を習得することを目標とする．

1. 麻酔の概念，種類，麻酔・手術に伴う生体反応を説明できる ( 3-1 ~ 3-7 , 2-1 ~ 2-8 )
2. 吸入麻酔と静脈麻酔の適応，禁忌，方法，合併症を概説できる ( 3-1 ~ 3-2 , 4-1 ~ 4-4 )
3. 筋弛緩薬の種類と使用上の原則を説明できる ( 3-1 ~ 3-2 , 4-1 ~ 4-4 )
4. 気管挿管を含む各種の気道確保法を概説できる ( 3-1 ~ 3-2 , 4-1 ~ 4-4 )
5. 安全な麻酔のためのモニタリングの方法，重要な異常所見と対処法を概説できる ( 3-1 ~ 3-2 , 3-5 , 4-1 ~ 4-7 )
6. 麻酔管理を安全に行うための呼吸・循環管理を概説できる ( 3-1 ~ 3-2 , 4-1 ~ 4-4 )
7. 動脈血液ガス分析と酸塩基平衡について概説できる ( 3-1 ~ 3-2 , 4-1 ~ 4-4 )
8. 周術期の輸液，輸血療法について概説できる ( 3-1 ~ 3-2 , 4-1 ~ 4-4 )
9. 痛みの特徴とその対処法について概説できる ( 3-1 ~ 3-4 , 4-1 ~ 4-4 , 5-1 ~ 5-3 )
10. 妊産婦の特性と麻酔管理について概説できる ( 3-1 ~ 3-4 , 4-1 ~ 4-4 )
11. 無痛分娩について概説できる ( 3-1 ~ 3-4 , 4-1 ~ 4-4 )
12. 小児の特性と麻酔管理について概説できる ( 3-1 ~ 3-4 , 4-1 ~ 4-4 )
13. 患者の意識が消失し，意思疎通ができない環境において医師として必要な倫理，医療行動を学ぶ ( 1-1 ~ 1-2 , 2-1 ~ 2-8 )
14. 麻酔関連の合併症が生じた場合の対応を医療安全の概念を踏まえて，概説できる ( 3-4 ~ 3-7 , 4-5 ~ 4-7 )
15. 最近の麻酔および周術期管理に関するエビデンスやガイドラインについて概説できる ( 3-3 , 4-3 )
16. 緩和医療について概説できる． (1-1 ~ 1-2, 3-1 ~ 3-4, 4-1 ~ 4-4)
17. 関連するプロフェッショナリズムを学ぶ ( 1-1 ~ 1-2 , 2-1 ~ 2-8 )

#### 4. Textbook/Reference Books

臨床麻酔科学書 ( 中山書店 )

標準麻酔科学 第 7 版 ( 医学書院 )

Miller 's Anesthesia 9th edition ( Elsevier ))

#### 5. Assessment

Unified exam, objective exam, report, attendance, etc.

統一試験，客観試験，レポート，出席など

#### 6. Out of Class Study/Message

1. Please prepare the lesson contents in the textbook in advance and review the points that you did not understand after the lesson.
2. If you have any questions, please come to the instructor at any time.
3. Lecture materials (PDF file) will be posted on the classroom website at a later date.

1. 事前に授業内容を教科書で予習し，授業後には理解できなかった点を復習してください．

2. 疑問点はいつでも担当教員に質問してください。
3. 講義資料は後日、当教室の HP に掲載する予定です。

Topics and Contents of class, Course Objectives						
	Class Date	Period	Class Format	Topics and Contents of class, Course Objectives	Instructors	Class Room
1	6 / 17 (Mon)	7-8	Lecture	<p>Theme: Theme: Orientation -Introduction to Anesthesiology- (オリエンテーション ~ 麻酔科学総論 ~ )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain what anesthesia is.</li> <li>2. be able to explain what types of anesthesia are available.</li> <li>3. be able to explain the biological reactions associated with anesthesia and surgery.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 麻酔とは何かを概説できる .</li> <li>2. 麻酔にはどのような種類があるかを概説できる .</li> <li>3. 麻酔・手術に伴う生体反応を概説できる .</li> </ol>	Yukitoshi Niiyama (新山 幸俊)	附属病院第二病棟 2 階 多目的室
2	6 / 17 (Mon)	9-10	Lecture	<p>Theme: General anesthetics and muscle relaxants ( 全身麻酔薬と筋弛緩薬 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the characteristics, indications, contraindications, and complications of inhaled and intravenous anesthetics.</li> <li>2. be able to explain the characteristics, indications, contraindications, and complications of muscle relaxants.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 静脈麻酔薬および吸入麻酔薬の特徴, 適応, 禁忌, 合併症を概説できる .</li> <li>2. 筋弛緩薬の特徴, 適応, 禁忌, 合併症を概説できる .</li> </ol>	Yuta Horikoshi (堀越 雄太)	附属病院第二病棟 2 階 多目的室
3	6 / 18 (Tue)	7-8	Lecture	<p>Theme: Nerve block and opioid ( 神経ブロックとオピオイド )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the characteristics, indications, contraindications, and complications of nerve block.</li> <li>2. be able to explain the characteristics, indications, contraindications, and complications of opioid.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 神経ブロックの特徴, 適応, 禁忌, 合併症を概説できる .</li> <li>2. オピオイドの特徴, 適応, 禁忌, 合併症を概説できる .</li> </ol>	Natsuko Yamamoto (山本 夏子)	附属病院第二病棟 2 階 多目的室
4	6 / 18 (Tue)	9-10	Lecture	<p>Theme: Airway Management and Respiratory Management ( 気道確保と呼吸管理 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the significance and method of airway management including tracheal intubation.</li> <li>2. be able to explain respiratory management for safe anesthesia management.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 気管挿管を含む気道確保の意義, 方法を概説できる .</li> <li>2. 麻酔管理を安全に行うための呼吸管理を概説できる .</li> </ol>	Koji Sato (佐藤 浩司)	附属病院第二病棟 2 階 多目的室

Topics and Contents of class, Course Objectives						
	Class Date	Period	Class Format	Topics and Contents of class, Course Objectives	Instructors	Class Room
5	6 / 20 (Thu)	7-8	Lecture	<p>Theme: Monitoring and Circulation Management ( モニタリングと循環管理 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain monitoring methods for safe anesthesia, important abnormal findings and coping strategies.</li> <li>2. be able to explain circulatory management for safe anesthesia management.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 安全な麻酔のためのモニタリングの方法 , 重要な異常所見と対処法を概説できる .</li> <li>2. 麻酔管理を安全に行うための循環管理を概説できる .</li> </ol>	Akira Nemoto ( 根本 晃 )	附属病院 第二病棟 2 階 多目 的室
6	6 / 20 (Thu)	9-10	Lecture	<p>Theme: Anesthesia management for pregnant women and painless labor using regional nerve block ( 妊産婦の麻酔管理と無痛分娩 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the physiological characteristics of pregnant women and anesthesia management (caesarean section).</li> <li>2. be able to explain painless labor using regional nerve block.</li> <li>3. be able to explain the position of Anesthesiologist in painless labor.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 妊産婦の生理学的特徴と ( 帝王切開の ) 麻酔管理を概説できる .</li> <li>2. 無痛分娩について概説できる .</li> <li>3. 無痛分娩における麻酔科医の立ち位置について概説できる .</li> </ol>	Chika Kuriyagawa ( 厨川 千香 )	附属病院 第二病棟 2 階 多目 的室
7	6 / 24 (Mon)	7-8	Lecture	<p>Theme: Anesthesia management for pregnant children ( 小児の麻酔管理 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the physiological characteristics and anesthesia management of children.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 小児の生理学的特徴と麻酔管理を概説できる .</li> </ol>	Ayano Sekigawa ( 関川 綾乃 )	附属病院 第二病棟 2 階 多目 的室
8	6 / 24 (Mon)	9-10	Lecture	<p>Theme: Arterial Blood Gas Analysis and Acid-Base Balance ( 動脈血液ガス分析と酸塩基平衡 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain arterial blood gas analysis.</li> <li>2. be able to explain acid-base equilibrium.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 動脈血液ガス分析について概説できる .</li> <li>2. 酸塩基平衡について概説できる .</li> </ol>	Tetsu Kimura ( 木村 哲 )	附属病院 第二病棟 2 階 多目 的室

Topics and Contents of class, Course Objectives						
	Class Date	Period	Class Format	Topics and Contents of class, Course Objectives	Instructors	Class Room
9	6 / 25 (Tue)	7-8	Lecture	<p>Theme: Perioperative infusion and blood transfusion therapy ( 周術期の輸液、輸血療法 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the basics of perioperative infusion and blood transfusion therapy.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 周術期の輸液，輸血療法の基本を概説できる．</li> </ol>	Tetsu Kimura ( 木村 哲 )	附属病院 第二病棟 2 階 多目的室
10	6 / 25 (Tue)	9-10	Lecture	<p>Theme: Pain Clinic ( ペインクリニック )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the basics of diagnosis and treatment of acute pain.</li> <li>2. be able to explain the basics of diagnosis and treatment of chronic pain.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 急性痛の診断・治療について概説できる．</li> <li>2. 慢性痛の診断・治療について概説できる．</li> </ol>	Tetsu Kimura ( 木村 哲 )	附属病院 第二病棟 2 階 多目的室
11	6 / 27 (Thu)	7-8	Lecture	<p>Theme: Palliative care <i>Generalremarks</i> ( 緩和医療概論 )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain palliative care.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 緩和医療について概説できる．</li> </ol>	Yumi Koshimura ( 越村 裕美 )	附属病院 第二病棟 2 階 多目的室
12	6 / 27 (Thu)	9-10	Lecture	<p>Theme: Summary-Anesthesiologist's pride- ( 総括 ～ 麻酔科医の矜持 ～ )</p> <p>The goals of this lecture are to</p> <ol style="list-style-type: none"> <li>1. be able to explain the role of anesthesiologists in surgery and perioperative management.</li> <li>2. be able to explain the role of anesthesiologists in community medicine.</li> <li>3. be able to explain the ethics and medical behavior required as a doctor.</li> </ol> <p>学修目標</p> <ol style="list-style-type: none"> <li>1. 手術および周術期管理における麻酔科医の役割を概説できる．</li> <li>2. 地域医療における麻酔科医の役割を概説できる．</li> <li>3. 医師として必要な倫理，医療行動を概説できる．</li> </ol>	Yukitoshi Niiyama ( 新山 幸俊 )	附属病院 第二病棟 2 階 多目的室