

SCBM 341: General Pathology
1st Semester, Academic Year 2018

Department of Pathobiology
Faculty of Science
Mahidol University

Course Syllabus

(Lecture-Lab-Self-study)

SCBM 341 General Pathology

2(1-2-3)

Cell injury and cell death, Cell adaptations, Inflammation and Tissue Repair, Hemodynamic disorders and Shock, Immunopathology, Neoplasia, Pathology of Infectious diseases, Genetic Diseases, Environmental and Nutritional Pathology

Prerequisite SCBI 211 & 212 Human Structure 1 & 2

Type of Course Required course

Session 1st Semester, Third year student

Course Condition class size: Approximately 20-25 students

Course Objective

At the completion of the course, students should be able to:

1. Explain the mechanism of host response to diseases.
2. Explain the organ and tissue alteration after pathological lesions.
3. Observe and practice in the organ and tissue alteration after pathological occurrences.
4. Discussion, analysis, presentation, question and answer in general pathological topics.

Course Outline

Week	Topic	Hours		Teaching methods/ multimedia	Instructors
		In-class activity	Lab		
1.	L1-Cell Injury and Death	1	2	Lecture and Laboratory	WJ
2.	L2-Adaptation	1	2	Lecture and Laboratory	WJ
3.	L3- Tissue Renewal and Repair	1	2	Lecture and Laboratory	NC
4.	L4- Inflammation	1	2	Lecture and Laboratory	PS
5.	L5-Immunopathology	1	2	Lecture and Laboratory	WP
6.	L6-Hemodynamic Disorders	1	2	Lecture and Laboratory	SN
7.	L7-Nutritional Pathology	1	2	Lecture and Laboratory	ANJ
	Midterm Examination (1-7)				WJ/PK
8.	L8-Metabolic Disorders	1	2	Lecture and Laboratory	SN
9.	L9-Genetic Disorders	1	2	Lecture and Laboratory	ANJ
10.	L10-Environmental Pathology	1	2	Lecture and Laboratory	WJ

o o	Topic	Hours		Teaching methods/	Instructors
11.	L11-Bacterial Infection	1	2	Lecture and Laboratory	YN
12.	L12-Fungal Infection	1	2	Lecture and Laboratory	NK
13.	L13-Viral Infection	1	2	Lecture and Laboratory	PC
14.	L14-Parasitic Infection	1	2	Lecture and Laboratory	NK
15.	L15-Neoplasia	1	2	Lecture and Laboratory	PS
	Final Examination (8-15)				WJ/PK
	Total	15	30		

Teaching methods

1. Lectures in class 15 hours.
2. Students design and carry out experiments in laboratory session 30 hours.

Teaching Media

1. Class handouts, Powerpoint presentation
2. Gross specimens and Histopathology glass slides
3. Photo album of Gross specimen and Histopathology glass slides

Measurement and Evaluation of Students Achievement

1. Examination in lecture 40%
2. Examination in laboratory 40%
3. Class participation and Quiz 20 %
4. Student Examination Grade = A, B+, B, C+, C, D+, D, F

Course Evaluation

1. Students gain knowledge according to the course objectives.
2. Students give written course evaluation at the end of the course.
3. Evaluate students' satisfaction towards teaching and learning of the course using a questionnaire.
4. The lecturer will be notified with the result of the course evaluation from students to further improve the lecturing process.

References

1. Kumar V, Abbas AK, Aster J (2017). *Robbins and Cotran Pathologic Basis of Disease*. 10th Edition, Elsevier.
2. The Internet Pathology Laboratory for Medical Education. Hosted by The University of Utah, Eccles Health Sciences Library. Retrieved from: <http://library.med.utah.edu/WebPath/webpath.html>

Instructors

1. ANJ = Assistant Professor Amornrat Naranuntarat Jensen, Ph.D.
2. NC = Nisamanee Charoenchon, Ph.D.
3. NK = Niwat Kangwanrangsang, Ph.D.
4. PC = Assistant Professor Pornthip Chaichompoo, Ph.D.
5. PS = Associate Professor Prasit Suwannalert, Ph.D.
6. SN = Somphong Narkpinit, M.D.
7. WJ = Associate Professor Wannee Jiraungkoorskul, Ph.D.
8. WP = Witchuda Payuhakrit, Ph.D.
9. YN = Yaowarin Nakornpakdee, Ph.D.

Scientist : Piya Kosai (Pathobiology), Suchada Gaewduanglek (MDL;Salaya)

Coordinator: Associate Professor Wannee Jiraungkoorskul

Department of Pathobiology, Faculty of Science, Mahidol University

Email: wannee.jir@mahidol.ac.th

Tel. 02-201-5571

Requesting an appeal:

1. Associate Professor Wannee Jiraungkoorskul, Ph.D. (Course Coordinator)

Department of Pathobiology, Faculty of Science, Mahidol University

Tel. 02-201-5571, E-mail: wannee.jir@mahidol.ac.th

2. Niwat Kangwanrangsang, Ph.D (Program Director)

Department of Pathobiology, Faculty of Science, Mahidol University

Tel. 02-201-5550, E-mail: niwat.kan@mahidol.ac.th

Leading Questions

L01 Cell Injury and Death

- What are the morphological features of cell death?

L02 Adaptation

- What are the stages of the cell cycle?

L03 Tissue Renewal and Repair

- How is importance of tissue renewal and repair?

L04 Inflammation

- What are benefit functions of inflammation?
- What are the different features of acute and chronic inflammation?

L05 Immunopathology

- How immune system causes tissue injury?

L06 Hemodynamic Disorders

- What is the pathogenesis of deep vein thrombosis?

L07 Nutritional Pathology

- What is nutritional pathology and what are the causes of nutritional pathology?

L08 Metabolic Disorders

- What is the pathogenesis of metabolic disorder?

L09 Genetic Disorders

- What are genetic disorders and what are the causes of genetic disorders?

L10 Environmental Pathology

- What are the occupational lung diseases?

L11 Bacterial Infection

- How bacteria caused pathology in human host?

L12 Fungal Infection

- What is the pathogenesis of fungal infection?

L13 Viral Infection

- Why are there new outbreaks of the virus?

L14 Parasitic Infection

- What is the pathogenesis of parasitic infection?

L15 Neoplasia

- What are characteristics of benign and malignant tumors?
- How to inhibit cancer cell invasion and metastasis?

Lesson Plan

1. Topic	L01-Cell Injury and Death
2. Name Lecturer	Dr. Wannee Jiraungkoorskul
Education	Ph.D. (Biology)
Position	Associate Professor
Contact	02-201-5571, Email: wannee.jir@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	24 August 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Explain the causes and mechanism of cell injury and death 2. Describe the reversible and irreversible injury 3. Describe the type of cellular necrosis
7. Topic Detail	
	Causes and mechanism of cell injury and death, Reversible and irreversible injury, Type of cellular necrosis
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Handout, Text book, Glass slide, Gross specimen, and CAI
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L02-Adaptation and Accumulation
2. Name Lecturer	Dr. Wannee Jiraungkoorskul
Education	Ph.D. (Biology)
Position	Associate Professor
Contact	02-201-5571, Email: wannee.jir@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	31 August 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe the cause of cellular adaptation and accumulation to injury 2. Describe the type and mechanism of cellular adaptation and accumulation to injury
7. Topic Detail	
	Cause, type and mechanism of cellular adaptation and accumulation to injury
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Handout, Text book, Glass slide, Gross specimen, and CAI
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L03-Tissue Renewal and Repair
2. Name Lecturer	Dr. Nisamanee Charoenchon
Education	Ph.D. (Medicine)
Position	Lecturer
Contact	02-201-5573, nisamanee.cha@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	7 September 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe processes of tissue repair, regeneration and their molecular mechanisms 2. Describe roles and components of the extracellular matrix (ECM) in tissue repairing processes 3. Differentiate between regeneration and healing 4. Differentiate between normal aspects of tissue and pathologic aspects of tissue repair
7. Topic Detail	
	<ol style="list-style-type: none"> 1. The processes of tissue repair, regeneration and their molecular mechanisms 2. Concepts of ECM and Cell-Matrix interactions 3. Definition and detail of regeneration and healing 4. Laboratory practice in gross and glass specimen related to tissue repair
8. Learning Methods	Lecture, Laboratory, Group discussion and Self study
9. Teaching Media	PPT, Handout, Text book, Gross specimens and Glass slides of histopathology
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L04-Inflammation						
2. Name Lecturer	Dr. Prasit Suwannalert						
Education	Ph.D. (Pathobiology)						
Position	Associate Professor						
Contact	02-201-5558, Email: prasit.suw@mahidol.ac.th						
3. Course	General Pathology (SCBM341)						
4. Program Title	B.Sc. in Biomedical Science						
5. Date and Time	14 September 2018, Time 1:00 am - 4:00 am						
6. Topic Objective	At the completion of this unit the student will be able to						
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1. Inflammation</td> <td style="width: 50%;">2. Acute inflammation</td> </tr> <tr> <td>3. Morphological patterns of acute inflammation</td> <td>4. Chemical mediators and regulators</td> </tr> <tr> <td>5. Chronic inflammation</td> <td>6. Systemic effects of inflammation</td> </tr> </table>	1. Inflammation	2. Acute inflammation	3. Morphological patterns of acute inflammation	4. Chemical mediators and regulators	5. Chronic inflammation	6. Systemic effects of inflammation
1. Inflammation	2. Acute inflammation						
3. Morphological patterns of acute inflammation	4. Chemical mediators and regulators						
5. Chronic inflammation	6. Systemic effects of inflammation						
7. Topic Detail							
	<ol style="list-style-type: none"> 1. Inflammation 2. Acute inflammation 3. Morphological patterns of acute inflammation 4. Chemical mediators and regulators 5. Chronic inflammation 6. Systemic effects of inflammation 						
8. Learning Methods	Lecture, Topic discussions, Laboratory						
9. Teaching Media	PPT, Handout, Text book, Gross specimens, Glass slides of histopathology						
10. Teaching Equipment	Computer, LCD						
11. Examination and Evaluation	Multiple choice questions						
12. Date of Improvement	10 August 2018						

Lesson Plan

1. Topic	L05-Immunopathology
2. Name Lecturer	Dr. Witchuda Payuhakrit
Education	Ph.D. (Pathobiology)
Position	Lecturer
Contact	02-201-5572, Email: witchuda.pay@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	21 September 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Understand the etiology of immunological disorder 2. Understand the mechanism of hypersensitivity reaction 3. Understand the pathogenesis of common immunological disorder 4. Understand the pathology of immunological disorder
7. Topic Details	
	<ol style="list-style-type: none"> 1. Introduction of normal immune response 2. Mechanism of hypersensitivity reactions 3. Pathogenesis and cellular pathology of autoimmune diseases 4. Pathogenesis and cellular pathology of immunodeficiency syndromes
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Power point presentation, Handout, Text books, Laboratory material and equipment
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L06-Hemodynamic Disorders
2. Name Lecturer	Somphong Narkpinit
Education	MD
Position	Lecturer
Contact	02-201-5550, Email : sompong.nak@.mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	28 September 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe mechanism of blood and fluid circulation. 2. Describe the definition and pathogenesis of edema, hyperemia, congestion, hemorrhage, thrombosis, embolism, infarction and shock. 3. Describe the macro- and microscopic appearance of organs and tissue due to hemodynamic disorders.
7. Topic Detail	
	Mechanism of normal blood and fluid circulation; Definition and pathogenesis of edema, hyperemia, congestion, hemorrhage, thrombosis, embolism, infarction and shock; Macro- and microscopic appearance of organs and tissue due to hemodynamic disorders.
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Handout, Text book, Glass slide, Gross specimen, and CAI
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10August 2018

Lesson Plan

1. Topic	L07-Nutritional Pathology
2. Name Lecturer	Amornrat Naranuntarat Jensen
Education	Ph.D. (Toxicology)
Position	Assistant Professor
Contact	02-201-5579, Email : amornrat.nar@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	5 October 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Define major causes of nutritional disorders 2. Give examples of nutritional diseases and their underlying causes 3. Explain how a nutritional imbalance can lead to diseases
7. Topic Detail	
	<ol style="list-style-type: none"> 1. Underlying causes of nutritional disorders 2. Disorders associated with protein-energy malnutrition 3. Vitamin and mineral deficiencies 4. Obesity and diseases associated with obesity 5. Over-consumptions of vitamin and mineral
8. Learning Methods	Lecture and Self study
9. Teaching Media	Handout and Text book
10. Teaching Equipment	Computer and LCD
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L08-Metabolic Disorders
2. Name Lecturer	Somphong Narkpinit
Education	MD
Position	Lecturer
Contact	02-201-5550, Email: sompong.nar@.mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	12 October 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe the definition of metabolic disorders. 2. Identify, classification and describe the pathogenesis due to metabolic disorders. 3. Explain and evaluate the sign, symptom, diagnosis and laboratory investigation, due to metabolic disorders. 4. Describe the macro- and microscopic appearance of organs and tissue due to metabolic disorders.
7. Topic Detail	
	Definition, identify, classification and pathogenesis due to metabolic disorders; Explain and evaluate the sign, symptom, diagnosis and laboratory investigation; Describe the macro- and microscopic appearance of organs and tissue due to metabolic disorders.
8. Learning Methods	Lecture, Laboratory, Self study, Presentation, Group discussion
9. Teaching Media	Handout, Text book, Publications
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L09-Genetic Disorders
2. Name Lecturer	Amornrat Naranuntarat Jensen
Education	Ph.D. (Toxicology)
Position	Assistant Professor
Contact	02-201-5579, Email : amornrat.nar@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	27 October 2017, Time 1:30 am - 4:30 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Explain how the genetic mutations can lead to the diseases 2. Define different classifications of genetic disorders as well as give examples of the disorder in each category 3. Explain transmission patterns of genetic disorders
7. Topic Detail	
	<p>Underlying causes of genetic diseases</p> <p>Classification of genetic disorders and their examples</p> <ul style="list-style-type: none"> - Single gene disorders - Chromosomal disorders - Multifactorial disorders - Mitochondrial disorders
8. Learning Methods	Lecture and Self study
9. Teaching Media	Handout and Text book
10. Teaching Equipment	Computer and LCD
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L10-Environmental Pathology
2. Name Lecturer	Dr. Wannee Jiraungkoorskul
Education	Ph.D. (Biology)
Position	Associate Professor
Contact	02-201-5571, Email: wannee.jir@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	2 November 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe the definition of environmental pathology. 2. Identify, classification and describe the pathogenesis due to environmental pathology. 3. Explain and evaluate the sign, symptom, diagnosis and laboratory investigation i.e., heavy metal analysis in urine, due to environmental pathology. 4. Describe the macro- and microscopic appearance of organs and tissue due to environmental pathology.
7. Topic Detail	
	<p>Definition, identify, classification and pathogenesis due to environmental pathology; Explain and evaluate the sign, symptom, diagnosis and laboratory investigation i.e., heavy metal analysis in urine; Describe the macro- and microscopic appearance of organs and tissue due to environmental pathology.</p>
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Handout, Text book, Glass slide, Gross specimen, and CAI
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L11-Bacterial Infection
2. Name Lecturer	Dr. Yaowarin Nakornpakdee
Education	Ph.D. (Medical Microbiology)
Position	Lecturer
Contact	02-201-5578, Email: yaowarin-arin@hotmail.com
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	9 November 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Understand the principles of bacterial infection and diseases caused by bacteria 2. Describe the pathogenesis of diseases caused by bacterial infection 3. Describe pathology of bacterial infection 4. Explain the host responses to bacterial infection
7. Topic Details	
	<ol style="list-style-type: none"> 1. Introduction to bacteria and virulence factors 2. Pathogenesis of diseases caused by bacterial infection 3. Pathology of bacterial infection 4. Host immune response to bacterial infection
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Power point presentation, Handout, Text books, Laboratory material and equipment
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L12-Fungal Infection
2. Name Lecturer	Dr. Niwat Kangwanrangsak
Education	Ph.D (Medical Sciences)
Position	Lecturer
Contact	02-201-5563, Email: niwat.kan@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	16 November 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe the principle and etiology of human important fungal infectious diseases. 2. Explain the major host responses to fungal infection and associated diseases. 3. Differentiate and explain the characteristics of cellular and tissue alterations of fungal infectious diseases.
7. Topic Detail	
	<ol style="list-style-type: none"> 1. Classification and nomenclature of fungi and related infectious diseases. 2. Characteristic of common fungal infectious diseases. 3. Pathological changes of human important fungal infectious diseases. 4. The mechanism and cause of changes of infectious fungal diseases that are common in immunocompromised host.
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Handout, Text book, Glass slide, Gross specimen, and CAI
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L13-Pathology of Viral Infection
2. Name Lecturer	Dr. Pornthip Chaichompoo
Education	Ph.D. (Immunology)
Position	Assistant Professor
Contact	Email: pornthip.chh@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	23 November 2018, Time 1:00 am - 4:00 am
6. Topic Objective	
<p>At the completion of this unit the student will be able to;</p> <ol style="list-style-type: none"> 1. Explain viral pathogenesis 2. Explain host defense mechanisms to viral infection 3. Explain cellular pathology of viral infection 4. Explain pathology of viral infection 5. Analyze diagnostic techniques for viral infection 6. Illustrate pathogenesis, pathology and diagnostic technique of dengue infection 	
7. Topic Detail	
<ol style="list-style-type: none"> 1. General properties and mechanisms of viral injection 2. Host defense mechanisms to viral injection 3. Immune evasion and pathogenesis of viral injection 4. Cellular pathology and pathophysiology of viral infection 5. Diagnosis of pathogenic viral infection 6. Pathogenesis, pathology and diagnostic technique of dengue infection 	
8. Learning Methods	Lecture, Presentation and Group discussion
9. Teaching Media	Power point presentation, Handout, Text book
10. Teaching Equipment	Computer, LCD
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L14-Parasitic Infection
2. Name Lecturer	Dr. Niwat Kangwanrangsak
Education	Ph.D (Medical Sciences)
Position	Lecturer
Contact	02-201-5563, Email: niwat.kan@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	30 November 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe the principle and etiology of human important parasitic infectious diseases. 2. Explain the major host responses to parasitic infection and associated diseases. 3. Differentiate and explain the characteristics of cellular and tissue alterations of parasitic infectious diseases.
7. Topic Detail	
	<ol style="list-style-type: none"> 1. Classification and nomenclature of parasitic and related infectious diseases. 2. Characteristic of common parasitic infectious diseases. 3. Pathological changes of human important parasitic infectious diseases. 4. The mechanism and cause of changes of parasitic infectious diseases that is common in immunocompromised host.
8. Learning Methods	Lecture, Laboratory and Self study
9. Teaching Media	Handout, Text book, Glass slide, Gross specimen, and CAI
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018

Lesson Plan

1. Topic	L15-Neoplasia
2. Name Lecturer	Dr. Prasit Suwannalert
Education	Ph.D. (Pathobiology)
Position	Associate Professor
Contact	02-201-5558, Email : prasit.suw@mahidol.ac.th
3. Course	General Pathology (SCBM 341)
4. Program Title	B.Sc. (Biomedical Science)
5. Date and Time	7 December 2018, Time 1:00 am - 4:00 am
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Terminology and classification of neoplastic cells 2. Invasion, metastasis, grading, and staging of tumors 3. Cell and molecular biology for cancer development 4. Host defense against tumors 5. Cancer epidemiology
7. Topic Detail	
	<ol style="list-style-type: none"> 1. Terminology and classification of neoplastic cells 2. Invasion, metastasis, grading, and staging of tumors 3. Cell and molecular biology for cancer development 4. Host defense against tumors 5. Cancer epidemiology
8. Learning Methods	Lecture, Topic discussions, Laboratory
9. Teaching Media	PPT, Handout, Text book, Gross specimens, Glass slides of histopathology
10. Teaching Equipment	Computer, LCD
11. Examination and Evaluation	Multiple choice questions
12. Date of Improvement	10 August 2018