

SCPA 501: General Pathology

Year 2018

Department of Pathobiology

Mahidol University

Course Specification

(Lecture-Lab-Self-study)

SCPA 501 **General Pathology**

2(1-2-3)

Basic mechanisms of host cellular response to injury, morphological changes due to cell death, cell adaptations including cell necrosis, inflammation, and reparative process due to genetic abnormality, and neoplasia.

Prerequisite None

Type of Course Required course

Session 1st Semester

Course Conditions class size: None

Course Objectives At the completion of the course:

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

Course-level learning outcomes: CLOs

M.Sc. students should have expected learning outcomes as following:

1. CLO1: Show proper usage of qualitative and quantitative data from scientific information to the objective in general pathology (1.1)
2. CLO2: Apply basis of anatomical pathology, histological technique and pathophysiology to diseases (2.1)
3. CLO3: Analyze knowledge in general pathology at molecular, cellular and organ levels (3.1)
4. CLO4: Analyze technical skills in general pathology at molecular, cellular and organ levels (3.2)
5. CLO5: Evaluate basic knowledge in general pathology with clinical correlations (5.1)
6. CLO6: Develop a propensity for lifelong learning and skills to achieve it (5.3)

Ph.D. students should have expected learning outcomes as following:

1. CLO1: Judge proper usage of qualitative and quantitative data from scientific information to the objective in general pathology (1.2)
2. CLO2: Analyze basis of anatomical pathology, histological technique and pathophysiology to clinical correlation (2.2)
3. CLO3: Analyze knowledge in general pathology at molecular, cellular and organ levels (3.1)
4. CLO4: Analyze technical skills in general pathology at molecular, cellular and organ levels (3.2)
5. CLO5: Integrate basic knowledge in general pathology with clinical correlations (5.2)
6. CLO6: Develop a propensity for lifelong learning and skills to achieve it (5.3)

Course Outline

Weeks	Topic	Hour			Instructor
		Lecture/ Discussion	Lab.	Self-study	
1	Introduction (Syllabus, Objective & Examination)	1		2	WJ
	Cell Injury and Death				
	Lab 1-Cell Injury and Death		2	1	WJ
	Adaptation and Accumulation	1		2	
	Lab 2-Adaptation and Accumulation		2	1	PS
	Inflammation	1		2	
Lab 3- Inflammation		2	1		
2	Tissue Renewal and Repair	1		2	NC
	Lab 4- Tissue Renewal and Repair		2	1	
	Hemodynamic Disorders	1		2	SN
	Lab 5- Hemodynamic Disorders		2	1	
	Immunopathology	1		2	WP
	Lab 6- Immunopathology		2	1	
3	Environmental Pathology	1		2	WJ
	Lab 7- Environmental Pathology		2	1	
	Metabolic Disorders	1		2	SN
	Lab 8- Metabolic Disorders		2	1	
	Genetic Disorders	1		2	ANJ
	Lab 9- Genetic Disorders		2	1	
Exam	Examination: Lecture	L1-8			WJ/Piya
	Examination: Laboratory	Lab1-8			
4	Parasitic Infection	1		2	NK
	Lab 10- Parasitic Infection		2	1	
	Fungal Infection	1		2	NK
	Lab11- Fungal Infection		2	1	
	Viral Infection	1		2	PC
	Lab 12- Viral Infection		2	1	
5	Bacterial Infection	1		2	YN
	Lab 13- Bacterial Infection		2	1	
	Neoplasia	1		2	PS
	Lab 14- Neoplasia		2	1	
	Carcinogenesis	1		2	PS
	Lab 15- Carcinogenesis		2	1	

Weeks	Topic	Hour			Instructor
		Lecture/ Discussion	Lab.	Self-study	
Exam	Examination: Lecture	L9-15			WJ/Piya
	Examination: Laboratory	Lab9-15			

Teaching methods of the course learning outcomes

cLOs	Teaching methods	Student assessment
CLO1	Lecture, Discussion	Short answer test Written test Practical test Presentation Rubric
CELO2	Lecture Discussion Questions	Short answer test Written test Practical test Presentation Rubric
CLO3 CLO4	Lecture Discussion Questions Demonstration and practice	Short answer test Written test Practical test Presentation Rubric
CLO5 CLO6	Lecture Discussion Questions Group project Case study	Written test Practical test Work assignment Presentation Rubric

Measurement and Evaluation of Students Achievement

1. Formative assessment (30%)

CLOs	Assessment methods	Assessment ratio (Percentage)
CLO1	Practical test Presentation Rubric	5
CLO2	Practical test Presentation Rubric	5
CLO3 CLO4	Practical test Presentation Rubric	10
CLO5 CLO6	Practical test Work assignment Presentation Rubric	10
Total		30

2. Summative assessment (Midterm 35% and Final examination 35%)

2.1 Tool and percentage weight in assessment and evaluation

CLOs	Assessment methods	Assessment ratio (Percentage)
CLO1	Short answer test Written test	10
CLO2	Short answer test Written test	10
CLO3 CLO4	Short answer test Written test	25
CLO5 CLO6	Written test	25
Total		70

2.2 Grading system

Grade	Achievement	GPA
A	Excellent	4.0
B+	Very good	3.5
B	Good	3.0
C+	Fairly good	2.5
C	Fair	2.0
D+	Poor	1.5
D	Very poor	1.0
F	Fail	0.0

3. Re-examination if course lecturer allows to have re-examination
4. Student appeals according to Faculty of Graduate Studies and MU rule and regulation

Teaching Media

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

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, and Aster JC. 2017. Robbins Basic Pathology. 10th Edition. Elsevier. 952pp. ISBN 10: 0323353177 / ISBN 13: 9780323353175
2. Rubin E, Reisner HM. Essentials of Rubin's Pathology. 6th ed., Lippincott Williams & Wilkins, 2013, 704p.
3. Underwood JCE, Cross SS. General and Systematic Pathology. 5th ed., Churchill Livingstone, 2009, 872p.
4. The Internet Pathology Laboratory for Medical Education Florida State University College of Medicine : <http://library.med.utah.edu/WebPath/webpath.html>
5. The Pathology Guy" Ed Friedlander MD Chairman, Dept. of Pathology, University of Health Sciences, KC : <http://www.pathguy.com/>

Alignment between CLOs and PLOs of Master degree

Course	Program Learning Outcomes (PLOs)								
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
SCPA501	G	S	S	S	S	S	G	G	G
CLO1	1.1								
CLO2		2.1							
CLO3			3.1						
CLO4			3.2						
CLO5					5.1				
CLO6					5.3				

Note: G=Generic learning outcomes; S=Specific learning outcomes

Alignment between CLOs and PLOs of PhD degree

Course	Program Learning Outcomes (PLOs)								
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
SCPA501	G	S	S	S	S	S	G	G	G
CLO1	1.2								
CLO2		2.2							
CLO3			3.1						
CLO4			3.2						
CLO5					5.2				
CLO6					5.3				

Note: G=Generic learning outcomes; S=Specific learning outcomes

Instructors

1. ANJ = Assistant Professor Amornrat Naranuntarat Jensen, Ph.D.
2. NC = Nisamanee Charoenchon, Ph.D.
3. NK = Niwat Kangwanrangsan, 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: Mr. Piya Kosai

Coordinator Associate Professor Wannee Jiraungkoorskul, Ph.D.

Department of Pathobiology, Faculty of Science, Mahidol University

Tel. 02-201-5563, E-mail: wannee.jir@mahidol.ac.th

Leading Question

L1-Cell Injury and Death	What are the morphological features of cell death?
L2-Adaptation and Accumulation	What are the stages of the cell cycle?
L3-Inflammation	What are the pathological responses in acute and chronic inflammation?
L4-Tissue Renewal and Repair	How different between regeneration and repairing in your opinion?
L5-Hemodynamic Disorders	What is the pathogenesis of deep vein thrombosis?
L6-Immunopathology	What are the immunological disorders?
L7-Environmental Pathology	What are the occupational lung diseases?
L8-Metabolic Disorders	What is the pathogenesis of metabolic disorder?
L9-Genetic Disorders	How can DNA mutations lead to genetic diseases?
L10-Parasitic Infection	What is the pathogenesis of parasitic infection?
L11-Fungal Infection	What is the pathogenesis of fungal infection?
L12-Viral Infection	Why are there new outbreaks of the virus?
L13-Bacterial Infection	How bacteria caused pathology in human host?
L14-Neoplasia	What are the major characteristics of benign and malignant tumors?
L15-Carcinogenesis	What is the association of molecular basis and carcinogenesis?

Lesson Plan

1. Topic	L1-Cell Injury and Death
2. Name Lecturer	Dr. Wannee Jiraungkoorskul
Education	Ph.D. (Biology)
Position	Associate Professor
Contact	02-201-5571, wannee.jir@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	8 October 2018 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L2-Adaptation and Accumulation
2. Name Lecturer	Dr. Wannee Jiraungkoorskul
Education	Ph.D. (Biology)
Position	Associate Professor
Contact	02-201-5571, wannee.jir@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	10 October 2018 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L3-Inflammation
2. Name Lecturer	Dr. Prasit Suwannalert
Education	Ph.D. (Pathobiology)
Position	Associate Professor
Contact	02-201-5558, prasit.suw@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	12 October 2018 Time 1.00-4.00 PM
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe the definitions of acute and chronic inflammation 2. Describe the morphologic patterns in acute inflammation 3. Discuss the association of cellular inflammation and pathological change 4. Discuss the chemical mediators of inflammation 5. Discuss the systemic effects of inflammation
7. Topic Detail	
	<ol style="list-style-type: none"> 1. Acute Inflammation <ol style="list-style-type: none"> 1.1 Vascular changes and cellular events 1.2 Outcomes of acute inflammation 2. Morphologic patterns in acute inflammation 3. Chronic inflammation and pathological response 4. Chemical mediators of Inflammation 5. Systemic effects of inflammation
8. Learning Methods	Lecture, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L4-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 (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	17 October 2018 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L5-Hemodynamic Disorders
2. Name Lecturer	Somphong Narkpinit
Education	MD
Position	Lecturer
Contact	02-201-5550, sompong.nak@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	19 October 2018 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L6-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 (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	24 October 2018 Time 1.00-4.00 PM
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. Describe the pathogenesis of common immunological disorder 3. Describe the pathology of immunological disorder
7. Topic Detail	
	<ol style="list-style-type: none"> 1. Primary immunodeficiency diseases 2. Autoimmune diseases 3. Transplantation immunology 4. Secondary immunodeficiency syndromes
8. Learning Methods	Lecture, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L7-Environmental Pathology
2. Name Lecturer	Dr. Wannee Jiraungkoorskul
Education	Ph.D. (Biology)
Position	Associate Professor
Contact	02-201-5571, wannee.jir@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	26 October 2018 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L8-Metabolic Disorders
2. Name Lecturer	Somphong Narkpinit
Education	MD
Position	Lecturer
Contact	02-201-5550, sompong.nak@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	29 October 2018 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L9-Genetic Disorders
2. Name Lecturer	Dr. Amornrat Naranuntarat Jensen
Education	Ph.D. (Toxicology)
Position	Assistant Professor
Contact	02-201-5579, amornrat.nar@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	9 November 2018 Time 1.00-4.00 PM
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Define different classifications of genetic disorders based on their underlying causes 2. Explain underlying causes of genetic diseases and able to give examples for each mechanism 3. Describe various types of mutations and how those mutations can lead to disorders 4. Explain transmission patterns of different genetic disorders
7. Topic Detail	
	<p>Classification of genetic disorders and their underlying causes</p> <p>Epigenetic alteration and genetic disorders</p> <p>Single-gene disorders</p> <p>Chromosomal disorders</p> <p>Multifactorial disorders</p>
8. Learning Methods	Lecture, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L10-Parasitic Infection
2. Name Lecturer	Dr. Niwat Kangwanrangsan
Education	Ph.D (Medical Sciences)
Position	Lecturer
Contact	02-201-5563, niwat.kan@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	12 November 2017 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L11-Fungal Infection
2. Name Lecturer	Dr. Niwat Kangwanrangsak
Education	Ph.D (Medical Sciences)
Position	Lecturer
Contact	02-201-5563, niwat.kan@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	14 November 2018 Time 1.00-4.00 PM
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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L12-Viral infection
2. Name Lecturer	Dr. Pornthip Chaichompoo
Education	Ph.D. (Immunology)
Position	Assistant Professor
Contact	02-201-5550, pornthip.chh@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	16 November 2018 Time 1.00-4.00 PM
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe pathogenesis of viral infection 2. Diagnosis of pathogenic viral infection from clinical history and pathogen indication including macroscopic morphology /gross specimens and histopathology
7. Topic Detail	
	<ol style="list-style-type: none"> 1. General principles of virus pathogenesis 2. Pathogen, pathogenesis, clinical presentation and pathogen indication of pathogenic human viruses and viral diseases in organ systems
8. Learning Methods	Lecture, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L13-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 (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	19 November 2017 Time 1.00-4.00 PM
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 Detail	
	<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, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L14-Neoplasia
2. Name Lecturer	Dr. Prasit Suwannalert
Education	Ph.D. (Pathobiology)
Position	Associate Professor
Contact	02-201-5558, prasit.suw@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	21 November 2018 Time 1.00-4.00 PM
6. Topic Objective	At the completion of this unit the student will be able to
	<ol style="list-style-type: none"> 1. Describe terminology of neoplastic cells 2. Describe the characteristics of benign and malignant tumors 3. Describe cancer invasion and metastasis 4. Describe the grading and staging of cancer 5. Describe the host defense against tumors 6. Describe the paraneoplastic manifestations 7. Discuss the pathological changes of benign and malignant tumors
7. Topic Detail	
	<ol style="list-style-type: none"> 1. Terminology of neoplastic cells 2. Characteristics of benign and malignant tumors 3. Cancer invasion and metastasis 4. Grading and staging of cancer 5. Host defense against tumors 6. Paraneoplastic manifestations 7. Pathological changes of benign and malignant tumors
8. Learning Methods	Lecture, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018

Lesson Plan

1. Topic	L15-Carcinogenesis
2. Name Lecturer	Dr. Prasit Suwannalert
Education	Ph.D. (Pathobiology)
Position	Associate Professor
Contact	02-201-5558, prasit.suw@mahidol.ac.th
3. Course	General Pathology (SCPA 501)
4. Programme Title	M.Sc. and Ph.D. in Pathobiology
5. Date and Time	23 November 2018 Time 1.00-4.00 PM
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 carcinogenesis 2. Discuss the association of carcinogenic agents and cancer 3. Discuss the roles of molecular basis in cancer development and progression 4. Describe cancer incidence and cancer epidemiology
7. Topic Detail	
	<ol style="list-style-type: none"> 1. The definition of carcinogenesis 2. Carcinogenic agents and cancer 3. Molecular basis of cancer 4. Cancer incidence and cancer epidemiology
8. Learning Methods	Lecture, Discussion, Laboratory and Self study
9. Teaching Media	Handout, Text book, Gross specimen, and Glass slide
10. Teaching Equipment	Computer, LCD, Microscope
11. Examination and Evaluation	Participate in Discussion, Examination by short assay
12. Date of Improvement	26 July 2018