بسمه تعالی

In the Name of God

Hamadan University of Medical Sciences and Health Services
Educational Deputy of the University
Center for Studies and Development of Medical Sciences Education

Theory/Practical Lesson Plan Form

Dear Colleagues,

As the teaching-learning process is one that requires careful planning to achieve its objectives, the preparation of a lesson plan at the beginning of the educational process (as a map and guide for instructors and students) is essential. It serves as one of the main tools for the educational activities of instructors. Therefore, we kindly ask all instructors to pay utmost attention to completing the lesson plan.

Course and Instructor Details (Completing all items in this section is essential)

- Course title: Gastrointestinal Physiology
- Instructors: Dr. Safoura Raoufi; Dr. Mohammad Zarei
- Course coordinator: Dr. Mohammad Zarei
- Head of Department: Dr. Siamak Shahidi
- Credit hours: Theory: 2.0 units; Practical: 0.0 units
- Program & student level: MSc in Physiology
- Term: First semester, Academic Year 1402–1403

- Teaching location: School of Medicine
- Language of instruction: English

Session schedule (16 sessions) — Persian dates preserved

Session	Topic (Title)	Behavioral objectives	Learning domain	Teaching methods	Duration	Teaching aids	Assessment method
1	Functional anatomy of the gastrointestinal tract	1. Explain the structure of the GI tract wall. 2. Describe blood supply and innervation of the GI tract.	Cognitive	Lecture and group discussion	2 hours	Video projector, computer, whiteboard	Oral Q&A
2	Regulatory mechanisms in the GI tract	1. Explain endocrine regulation of the GI tract. 2. Explain paracrine regulation of the GI tract. 3. Explain neural regulation of the GI tract.	Cognitive	Lecture and group discussion	2 hours	Video projector, computer, whiteboard	Oral Q&A
3	Electrophysiology of GI smooth muscle	1. Describe functional anatomy of GI smooth muscle. 2. Explain electrophysiology of GI smooth muscle. 3. Describe types of GI motility.	Cognitive	Lecture and group discussion	2 hours	Video projector, computer, whiteboard	Oral Q&A
4	Integrated responses: cephalic, oral and esophageal	1. Describe overall events of the cephalic and oral phases. 2. Explain	Cognitive	Lecture and group discussion	2 hours	Video projector, computer,	Oral Q&A

	phases — Part I	functional anatomy of salivary glands, saliva composition, ionic mechanisms of salivary secretion, and regulation of saliva secretion.				whitebo ard	
5	Integrated responses: cephalic, oral and esophageal phases — Part II	1. Describe swallowing stages and neural control of swallowing. 2. Explain functional anatomy of the esophagus, events of the esophageal phase, esophageal motility, and sphincter function.	Cognitive	Lectur e and group discuss ion	2 hours	Video project or, comput er, whitebo ard	Oral Q&A
6	Gastric phase of the integrated response — Part I	1. Describe functional anatomy of the stomach. 2. Explain gastric motor patterns and their regulation.	Cognitive	Lectur e and group discuss ion	2 hours	Video project or, comput er, whitebo ard	Oral Q&A
7	Gastric phase — Part II	1. Explain organic (digestive) gastric secretions and their regulation. 2. Explain inorganic	Cognitive	Lectur e and group discuss ion	2 hours	Video project or, comput er, whitebo ard	Oral Q&A

		gastric secretions and their regulation.					
8	Gastric phase — Part III	1. Describe gastric digestion. 2. Explain overall gastric events.	Cognitive	Lecture and group discussion	2 hours	Video projector, computer, whiteboard	Oral Q&A
9	Intestinal phase of the integrated response — Part I	1. Describe gastric emptying into the small intestine. 2. Explain secretion and control of pancreatic enzymatic secretion. 3. Explain secretion and control of pancreatic aqueous secretion.	Cognitive — Knowledge & Comprehension	Lecture	2 hours	Slides, markers, whiteboard	Oral Q&A
10	Intestinal phase — Part II	1. Explain digestion and absorption of carbohydrates. 2. Explain digestion and absorption of lipids. 3. Explain digestion and absorption of proteins.	Cognitive — Knowledge	Lecture	2 hours	Slides, markers, whiteboard	Oral Q&A
11	Intestinal phase — Part III	1. Describe absorption and secretion of water and electrolytes. 2. Explain	Cognitive — Knowledge & Comprehension	Lecture	2 hours	Slides, markers, whiteboard	Oral Q&A

		motility patterns in the small intestine.					
12	Colonic phase of the integrated response — Part I	1. State anatomical consideratio ns of the colon. 2. Explain signals that regulate colonic function. 3. Describe motility patterns of the colon. 4. Explain colonic motor responses.	Cognitive — Comprehen sion & Knowledge	Lectur e	2 hours	Slides, markers , whitebo ard	Oral Q&A
13	Colonic phase — Part II	1. Explain mechanisms of digestion, absorption and secretion in the colon. 2. Describe the colonic microflora. 3. Describe defecation processes.	Cognitive — Comprehen sion	Lectur e	2 hours	Slides, markers , whitebo ard	Oral Q&A
14	Hepatic metabolic and transport functions — Part I	1. Describe anatomical consideratio ns of the liver. 2. Explain hepatic metabolic functions. 3. Describe hepatic detoxificatio n functions. 4. State the liver's role in excreting	Cognitive — Comprehen sion	Lectur e	2 hours	Slides, markers , whitebo ard	Oral Q&A and quiz

		water-soluble catabolites.					
15	Hepatic metabolic and transport functions — Part II	1. Describe structural features of the liver and biliary system. 2. Explain bile formation and secretion and mechanisms of bile acid synthesis. 3. Discuss hepatic aspects of enterohepatic circulation of bile acids.	Cognitive — Comprehension	Lecture	2 hours	Slides, markers, whiteboard	Oral Q&A
16	Hepatic metabolic and transport functions — Part III	1. List other bile components. 2. Explain gallbladder function. 3. Describe hepatic formation and excretion of bilirubin. 4. Explain hepatic handling of ammonia. 5. Describe clinical assessment of liver function.	Cognitive — Comprehension	Lecture	2 hours	Slides, markers, whiteboard	Oral Q&A

Student assessment table (grading scheme)

Assessment type	Date / When	Assessment tool	Weight (% of final grade)
Classroom Q&A	Selected sessions	Oral	10%

Seminar presentation	During some sessions	Oral presentation + Q&A	10%
Midterm exam	—	—	—
Final exam	According to academic calendar	Essay questions (descriptive)	80%
Other	—	—	—
Total	—	—	100%

References

1. Berne & Levy Physiology — latest edition
2. Johnson — Gastrointestinal Physiology — latest edition
3. Guyton and Hall — Textbook of Medical Physiology — latest edition
4. Ganong — Review of Medical Physiology — latest edition