

# HST 060 2019

## Molecules and Clinical Realities

**Goals:** To build a solid foundation in endocrine physiology  
To understand the pathophysiology of endocrine disorders from a clinical and, when possible, from a molecular basis

**Issues:** Different backgrounds, different interests, different needs, different goals, different career plans.... One course  
3+ hours per week, relatively small group, 14 scheduled sessions --

**Process:**  
Lectures – in class and on line  
Group Reports on Problem Sets  
Clinical Sessions  
Review Sessions

### **Tools:**

The Faculty  
Video Presentations (Links) to view before class  
Textbook(s)  
Literature  
Problem Sets  
Quickies  
Wonder of the Week (Student Discussion Blog)

Web site (Canvas)  
One Minute Follow Up Questions

Audience response activities (Poll Everywhere)

Weekly Quizzes  
Exams – mid-term and final (see below)

### **Mechanics:**

060 Goes Green  
Name Tents  
Thank you notes  
Class Participation  
Attitude  
Appearance

The intent of the course is to present the basic principles of endocrine physiology and to provide a platform upon which to build an understanding of mechanisms of endocrine function and dysfunction. Lectures, readings, problem set completion and discussions will be enhanced by clinical sessions with patients who have some of the conditions we are trying to understand.

Since common problems occur commonly, the course will emphasize the basics of modern endocrinology. Rare and unusual conditions will also be discussed, since they are often incredibly useful for developing an understanding of basic physiology and pathophysiology. For some, this course will be the beginning of the development of a knowledge base in endocrinology and metabolism; for others it will, hopefully, fill in any gaps and stimulate further thinking while it deepens an understanding of things endocrine.

Class time will focus on broadening and deepening our understanding of endocrinology. Textbooks and recorded lectures can and should be reviewed prior to class room discussion. In class we can probe more deeply, underscore our understanding of mechanisms, appreciate what is not known and speculate on clinical implications.

**Groups** The class has been divided into 6 groups – your group assignment is available on Canvas. Five of the groups have 3 major responsibilities – discussing an assigned problem set, playing the role of host for a guest lecturer, and interviewing a patient. One group will have a second problem set in lieu of a patient interview.

**Problem Sets:** Each of the seven problem sets will be assigned in advance to one group. Each group, under the watchful eye of the course directors, will review the topic and lead the class in a discussion of their assigned problem set. To ensure everyone benefits from this discussion, all other students are required to submit short-answer responses to the questions posed in each problem set on Canvas before coming to class. These submissions will not be formally graded, but submission will count equally towards the final grade assigned for participation in the Problem Sets (see below). Students in the presenting group will NOT be required to submit short answer responses to these questions during the week they are presenting. Answers to these Problem Set questions will be posted on Canvas after each in class presentation.

**Patient Interviews:** (5 of the 6 groups) Five patients are scheduled to join us during the course. These patients, many of whom have come to similar sessions in the past, are kind enough to spend some time with us talking about their condition. The interviews will be conducted in class by the assigned group in collaboration with either Dr. Breault or Dr. Kettyle. The assigned group will have reviewed the clinical information prior to the interview and will participate in the interview and discussion process. These are opportunities to hear what the patient has to say about living with their condition, and should not be thought of as an opportunity for you to say what you know about their condition.

**Hosting:** Each group will have the opportunity to serve as host for a visiting faculty member. Hosting includes welcoming and introducing our guest lecturers and formally thanking them for their participation after the class (either by email or as a handwritten note of thanks).

**Grading** The course will be graded. The evaluation will be based on class participation and performance [20.685%], on Canvas-itude [25.249%] (participation in Canvas Discssion Groups, quickies, etc), on quiz/exam performance [36.544] (13 quizzes, mid-term, final exam),

and on participation in the group assignments [27.715%] (problem sets, patient interviews). For HST students, the course is graded Honors, Pass, or Fail. For other students, grading will conform to the standards of the relevant school and department.

**Quizzes** The purpose of the weekly (10 minute) quizzes is to facilitate students staying on track and up-to-date throughout the course. Endocrinology is a discipline that builds on itself—reviewing the material from previous sessions on a weekly basis and coming to class prepared will accelerate mastery of the material. *To incentivize this process we pledge the following:*

**If the class can maintain a cumulative, average score of  $\geq 85\%$  on the quizzes, the Mid-Term and Final Exams will be canceled for anyone with a score  $> -2SD$  above the mean.**

**Office Hours:** Dr. David Breault: By appointment  
Dr. William Kettyle: By appointment  
  
Juliana Coraor: By appointment

**Course Camel:** The lecture notes/slides and problem sets for all lectures will be posted on the course website.

**Web site:** The course website is located at **Canvas.Harvard.edu**. It contains the course schedule, contact information for the course directors and other faculty, copies of most of the lecture notes (portable document format) and problem sets. Slide presentations (PowerPoint) for each lecture will be uploaded before the lecture when possible. Problem set answers and relevant discussion points will be uploaded after the class discussion of that problem set.

**Textbook:** There is no required textbook. However, we strongly encourage you to do supplemental reading in:

- Endocrine Pathophysiology by William Kettyle and Ronald A. Arky, Lippincott, 1998. A pdf file of each chapter from this book has been scanned into Canvas and is required reading before each class (see syllabus for details).
- Greenspan's Basic and Clinical Endocrinology, Gardner, D.G. and Shoback, D., Editors, Lange Medical Books/McGraw-Hill: New York, 10<sup>th</sup> Edition
- Optional articles from the scientific literature will also be available on the course web site and will provide in depth exposure to selected topics.

**Audience or personal response system (PRS):** During the course we will frequently employ an audience response system to encourage class participation, to identify areas of strength and those in need of improvement. We will not track attendance or responses of individuals.

This year we will be using Poll Everywhere. The system is remarkably agile and makes use of your own devices. This, therefore, is a BYOD (bring your own device) endeavor. Without adding yet another device to your book bag or handing out devices in class you will be able to use your smart phone or web-connected laptop to participate in the polling process. Although it is possible to respond to many questions by simple texting, the system works best, with a much more robust menu of possibilities when engaged with the app on a smart phone or laptop.

You may have used Poll Everywhere already. If not, or if you need a refresher please check out the information below.

You can check out the service by going to the Poll Everywhere website (<https://www.polleverywhere.com>). We will be using an HMS sponsored account, so there will not be any out-of-pocket expense for any of us. If you load the Poll Everywhere app onto your smart phone and/or paste and bookmark the URL below into your laptop browser, you will be poised to participate. We understand that most popular browsers and smart phones (iPhone and Android) will work well.

URL for laptop browser:

[www.pollev.com/hst060](http://www.pollev.com/hst060)

URL for iPhone app:

<https://itunes.apple.com/us/app/poll-everywhere/id893375312>

URL for android app:

<https://play.google.com/store/apps/details?id=com.polleverywhere.mobile>

In preparation for our first meeting, please:

1. Install the Poll Everywhere app on your smart phone and point the app to "HST060"
2. Bookmark - [www.pollev.com/hst060](http://www.pollev.com/hst060) - on your preferred laptop web browser
3. Do one of the above
4. Do all of the above

Session 1: Thursday, February 7, 2019	Session 2: Thursday, February 14, 2019	Session 3: Thursday, February 21, 2019	Session 4: Thursday, February 28, 2019
Reading: K&A Chapter 1	Reading: K&A Chapter 2 & 9		
1:30 - Course Introduction    Kettyle and Breault	1:30 Quiz 1 (15 min) Review (10 min)	1:30 Quiz 2 (15 min) Review (10 min)	1:30 Quiz 3 (15 min) Review (10 min)
3:15 - Break	2:00 - Hormone Action Breault	2:00 - Pituitary Anatomy/Surgery    Laws	2:00 - Hypothalamic Regulation of Energy Balance/ Appetite Regulation    Navarro
3:30 - 4:30 - Anterior Pituitary/Hypothalamus Kaiser	3:00 - Break	3:00 - Break	3:00 - Break
	3:15 - Growth and Development    Breault	3:15 - P.S. 1 Hormone Action	3:15 - P.S. 2 Anterior Pituitary
		3:45 - Patient 1 - Acromegaly	3:45 - Endocrine testing    Kettyle

Session 5: Thursday, March 7, 2019	Session 6: Thursday, March 14, 2019	Session 7: Thursday, March 21, 2019	Session 8: Thursday, March 28, 2019
Reading: K&A Chapter 4	Reading: K&A Chapter 4	Reading: K&A Chapter 5 & 10	Reading: K&A Chapter 3
1:30 Quiz 4 (10 min) Review (5 min)	1:30 Quiz 5 (15 min) Review (10 min)	1:30 Quiz 6 (15 min) Review (10 min)	1:30 Quiz 7 (15 min) Review (10 min)
1:45 - Thyroid Physiology    Chin	2:00 - P.S. 3 thyroid	2:00 - Adrenal Physiology    Breault	2:00 - Posterior Pituitary    Majzoub
3:15 - Break	2:30 - Patient 2 - Hyperthyroidism	3:00 - Break	3:15 - Break
3:30 - Thyroid Disease    Kettyle	3:15 - Break	3:15 - Adrenal Disease    Breault	3:30 P.S. 4 Adrenal
4:00 - Thyroid Function Tests    Kettyle	3:45 - Thyroid Quickies    Kettyle	4:00 - Patient 3 - Addison's Disease	4:00 - Adrenal Quickies    Kettyle

Session 9: Thursday, April 4, 2019	Session 10: Thursday, April 11, 2019	Thursday April 18, 2019	Session 11: Thursday April 25, 2019
Reading: K&A Chapter 6	Reading: K&A Chapter 8	<b>HST Spring Break: No Class</b>	Reading: K&A Chapter 7
1:30 Quiz 8 (10 min) Review (5 min)	1:30 Quiz 9 (10 min) Review (5 min)		1:30 - Energy Metabolism    Nathan
2:00 - Calcium & Phosphorus    Kronenberg	2:00 - Obesity    Flier		2:30 - Break
3:30 - Break	3:15 - Break		2:45 -Type 1 Diabetes    Garvey
3:45 P.S. 5 Posterior Pituitary	3:30 - P.S. 6 Calcium		4:00 - Patient 4 - DM 1
	4:00 - Calcium Quickies    Kettyle		

Session 12: Thursday, May 2, 2019	Session 13: Thursday, May 9, 2019	Session 14: Thursday, May 16, 2019	Session 15: Friday, May 24, 2019
Reading: K&A Chapter 7	Reading: K&A Chapter 7	Reading: K&A Chapter 11	
1:30 Quiz 10 (10 min) Review (5 min)	1:30 - Hypoglycemia    Wolfsdorf	1:30 Quiz 12 (10 min) Review (5 min)	1:30 ( Final Exam )
1:45 - T2DM / Insulin Resistance    Goldfine	2:30 - Break	1:45 - Endocrine Genetics    Udler	
3:00 - Break	2:45 Quiz 11 (10 min) Review (5 min)	2:45 - Break	
3:15 - Patient 5 - DM 2	3:00 - Polyglandular Syndromes    Astley	3:00 - Nutrition Matters    Lennerz	
4:00 - P.S. 7 Diabetes	4:00 - Glycemic Quickies    Kettyle	4:00 - Diabetes Skills Workshop	