

## Midterm - INTD262

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### 1 Unit 3

1. Recall the fascinating story about psychological research, in which the author shares that 67 percent of psychologists who were asked to share their data did not share it. (a) Were the rates of error higher or lower in the studies for which the authors did not share data? (b) In whose favor were the errors?

a) rates were higher  
b) the scientists were in favor of the errors.

2. "Recent research in behavioral economics has shown that groups are often better than individuals at finding errors in reasoning." (a) Why do you think this is the case? (b) Can you give an example of the wisdom of crowds thus far in our study of Latin American science?

a) I think this is the case because more people are looking at the reasoning so there are different perspectives and ideas to point out the errors rather than just one person.  
b) An example of the wisdom of crowds is the Expedición Botánica.

3. Recall the story of cold fusion. (a) List three facets of the peer review process that went wrong in this episode. (b) How long, from start to finish, did it take for the scientific community to sort out the errors in the cold fusion research?

a)  
1. lack of reproducibility  
2. A rush to publish  
3. insufficient validation  
b) It took 2 months for the scientific community to sort out the errors in the cold fusion research.

4. Note that we encountered several examples of viceregal engineers becoming Latin American leaders. (a) What are some examples of professions that involved modern technical skill in Río de la Plata and Perú? (b) What is the primary profession of modern US leaders, for example, elected to The United States Congress?

a) cartography, sailing, geography.  
b) lawyers and doctors are the primary profession of modern US leaders.

5. José Mariano Mociño and others were ordered by the Mexican viceroy on an expedition to Nootka Island. What was the purpose of the expedition? (Take INTD255 to learn more!)

The purpose of the expedition was to study animals, minerals, and plant wealth of the area and anything that could facilitate their commercialization.

6. In Perú, we must take note of the work of Hipólito Unánue. (a) What are some of his other scientific contributions? (b) In Nueva Granada, we must take note of the work of José Celestino Mutis. What are some of his main contributions?

a) Botany and Anfitheatro Anatomico  
b) Some of his main contributions were the Expedición Botánica.

7. (a) When did Latin American wars of independence begin, approximately? (b) Give some examples of scientists and engineers who fought and died for their countries.

a) 1810  
b) Francisco José de Caldar

## 2 Unit 4

1. How long after Semmelweis's solution to childbed fever was germ theory introduced?

Germ theory was introduced in the 1900's while Semmelweis solution to child fever was in 1846.

2. Where did the practice of autopsies begin? In what way does performing an autopsy fit with the scientific attitude?

The practice of autopsies began in Paris. Performing an autopsy fits with the scientific attitude because it requires observing and analyzing to gather evidence.

3. (a) Do you think the discovery of penicillin was an accident? Why or why not? (b) Louis Pasteur is quoted as saying "chance favors the prepared mind." What did he mean by this? (c) In light of (a) and (b) do you regard the discovery of cinchona as accidental or scientific?

a) I think the discovery of penicillin was an accident because he left a petri dish containing bacteria on a bench and when he returned he found mold and soon identified it as penicillin, so the discovery was accidental.

b) I think this means that only those who have the knowledge can take advantage of unexpected opportunities.

c) Cinchona discovery was accidental.

4. What event catalyzed the formation of the Establecimiento de Ciencias de Médicas in 1833?

The event that catalyzed the formation of the establecimiento de ciencias de medicas in 1833 was Mexican independence from Spain.

5. (a) List some reasons the authors give to explain why medical reforms were slow to materialize in Nueva Granada, relative to the struggle for reform in Nueva España. (b) Who led the medical reform process in Nueva Granada in the 18th century? (c) When and where was the Facultad de Medicina reestablished in Nueva Granada, and what happened next?

a) Some reasons why medical reforms were slow to materialize in Nueva Granada was because of their economy. They faced financial challenges which resulted in not being able to invest in the medical field.

b) José Celestino Mutis

c) In the Colegio de Rosario in 1802. What happened next was it was non-functioning until the war for independence in 1810 and reopened in 1819.

6. (a) How many medical schools were there in Brazil in the eighteenth century? (b) What happened to the Portuguese Crown in 1807? What influence did this have on medical reform?

a) There was only 1 school in Brazil in the eighteenth century.

b) The Portuguese court transferred to Brazil.

The influence this had on medical reforms is it established new medical schools.

7. As the generation of doctors in Columbia returned from France in the late 19th century, what three cultural institutions did they establish to enhance medical practice?

The three institutions they established to enhance medical practice were medical schools, health policy, and training.

8. **Triangulation** Suppose you observe a distant mountain from a flat plain. Suppose you walk a baseline of 1 km, perpendicular to the direction towards the mountain. The difference between the compass headings to the mountain at either end of the baseline is 5 degrees. How far away is the mountain?

$$d = \frac{b}{\theta}$$

$$d = \frac{1 \text{ km}}{0.08726} = 11.459$$

$$5^\circ \times \frac{\pi}{180} = 0.08726$$

9. **Latitude and Longitude** (a) Suppose two cities lie along a constant line of longitude. If we measure a change of 30 minutes (0.5 degree latitude) between them, how far apart are they, in km? (b) Suppose two cities lie along a constant latitude of 45 degrees North. If they are 600 km apart, what is the change in longitude between them?

$$a) \text{ degree} = 0.5^\circ$$

$$1 \text{ degree} = 111 \text{ km}$$

$$0.5 \times 111 \text{ km} = 55.5 \text{ km}$$

$$b) s = r \cos \theta$$

$$s = 111 \text{ km} \cos (45^\circ) = 78.448$$

$$\frac{600}{78.5} = 7.643^\circ$$

### 3 Unit 5

1. (a) When were the first medical journals published in Columbia? (Give a few examples). (b) Compare this time frame to the publication of the first mining, chemistry, and physics journals in Mexico. (c) How, or through whom, were these journals connected to medical schools in Columbia?

a) The first medical journals published in 1864 - La gaceta medica & la lanceta  
b) Començavio → razpvet de lion → Ganfoa  
c) These journals connected to medical schools in Columbia by Dr. Antonio Vagner Veyer (1865)

2. In 1833, two Enlightenment period institutions were merged into the beginnings of a modern medical school in Mexico. What were the three institutions?  
Facultad de medicina, real escuela de cirugía, y la ftecimiento de ciencias Medicas

3. Consider our major in kinesiology and nutrition science (KNS). To what extent would we consider this medicine, in the absence of modern germ theory? That is, are there other holistic forms of medical development we encountered in Latin American history besides vaccines and drugs that fight bacteria and viruses?

Kinesiology and nutrition science are medical practices such as acupuncture and physical therapy. Other holistic forms of medical development are chiropractors, herbal medicines, etc.

4. (a) What historical event in 1808 led to the creation of the first medical and surgical schools in Brazil (b) When did Brazil declare independence from Portugal? (c) How long after independence did the Brazilians introduce modern reforms into the medical schools in Bahia and Rio de Janeiro?

a) The historical event in 1808 was the Portugal court went to Rio de Janeiro.

B) 1822

c) 7 years

5. In Columbia, the Escuela de Medicina was founded in 1865. It was centered on hospital-based anatomy and physiology. Consider the following quote from the text: "The second phase is notable for the slow progress of laboratory-based medicine, especially etiopathological procedures. Its final stage, starting in the 1950s, is defined by the introduction of Flexnerian reforms from North American technological medicine." What does quote mean by Flexnerian? Think back to our reading in The Scientific Attitude.

What this quote means is the Flexner report found that the medical schools & practices were a fraud.

6. (a) What was a major driver of modern epidemiology in 19th Century Brazil? (b) What was the purpose of the Tropicalist School of medicine? (c) When did the bubonic plague enter Brazil, and how did the Brazilians respond?

a) Diseases that cause epidemics, tropical epidemics

b) The purpose of the Tropicalist school of medicine was to develop an original theory and proposed a non standard knowledge set.

c) 1899. Dr. Oswaldo Cruz developed vaccines to fight the plague.