



INTRODUCTION TO FORENSIC SCIENCE

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House Leader: **Aya Takino**

Course Description

Forensic science is a vast field. You may not have heard about forensic science before, but you probably know detective and criminal mystery fiction such as Sherlock Holmes. This course will introduce you to the world of collecting, examining, and interpreting criminal evidence like a real detective. Forensic science is the application of science to the judicial system: any science used for the purpose of the law is a forensic science, including fields like biology, physics, chemistry, and even psychology. We will understand forensic science through hands-on activities like observing and interpreting evidence. We will also discuss a variety of ways to collect and analyze evidence, and talk about other non-physical evidence. Since forensic science is not just about working in labs, we will also talk about how it can impact many people's lives and society as a whole.

Schedule

Day 1: *What is Forensic Science?*

We will introduce what forensic science is and explore the roles and responsibilities of forensic scientists by starting with its history and development. We will examine the procedure of going through a crime scene from recognizing the crime scene, preserving and collecting evidence from it, and keeping track of the evidence afterwards. We will also introduce specific terms in forensic science and start to explore evidence through a lab on fingerprints. The lab involves observing your own fingerprint and collecting fingerprints from prepared items. We will save the results and analyze them tomorrow.

Day 2: *Become a forensic scientist!*

On Day 2, we will learn the physical evidence that may be recovered during a criminal investigation and skills in applying the principles and techniques of the physical and natural sciences to collect and analyze evidence. We will talk about the scientific method, which is a process that uses strict guidelines to ensure careful and systematic collection, organization, and analysis of information in order to avoid error and bias. We will be focusing on DNA and blood, and will analyze the fingerprint results from yesterday.

Day 3: *Forensic science and society*

The main characteristic that makes forensic science very different from other sciences is that it works closely with the criminal and civil laws, which involve humans. Besides analyzing physical evidence, forensic scientists will also take into consideration



confessions and eyewitness accounts by victims or witnesses. We will discuss the many controversial issues that occur due to the inherent error and bias in subjective evidence. Imagine what it would be like if you were wrongfully convicted, and were only later proved to be innocent after spending years in jail. What kind of compensation would be enough to cover your loss apart from money? We will also introduce the CSI effect, which we will talk more about tomorrow.

Day 4: *CSI Effect, conclusion, and presentation*

As technology and media develop rapidly, the spread of information has both positive and negative effects on people's understanding of certain fields. After the first three days of discussion and the pre-assignment, we will talk about the CSI effect and how it may have already changed our expectations of technology. Students will also present their research on a case today.

Final presentation

Each student will give a short presentation (5-7 minutes) about a forensic case. Please include the following in your presentation:

- Brief introduction of the case.
- Describe the evidence that was involved in the case, and any technology that was used to collect it.
- Do you think that that any part could have been done in a better way? Were there any limitations caused by the technology available at the time?
- Was there any social impact after the case?

Below are some sample cases. You can pick any case that interests you as long as it involves forensic science and is not fictional. Feel free to use both English and Japanese resources for your research. The cases listed here include both famous American and Japanese cases, and links to both English and Japanese descriptions.

- O.J. Simpson murder case (O・J・シンプソン事件)
Case in English
Case in Japanese
- Ted Bundy the serial killer (テッド・バンディ)
Case in English
Case in Japanese
- Murder and the Horse Chestnut Tree (ロジャー・セヴァース)
Case in English
Case in Japanese



- Death by Tylenol 1982 (Chicago tylenol murders) (タイレノール事件)
Case in English
Case in Japanese
- The Lindbergh Baby Case (リンドバーグ愛児誘拐事件)
Case in English
Case in Japanese
- Pablo Escobar, Drug Lord (パブロ・エスコバル)
Case in English
Case in Japanese
- Kiyohara Kazuhiro (清原和博)
Case in English
Case in Japanese (for this one, please find more resources in Japanese)
- Japanese baby switched at birth (赤ちゃん取り違えの悲劇)
Case in English
Case in Japanese

Please feel free to choose other interesting cases as long as you can talk about the forensic science and evidence in the case. There is also a wiki page where you can find interesting cases, including many Japanese ones: 平成時代の殺人事件.

Pre-Seminar Assignments and Readings

1. Start working on the final presentation (above). Please email me (feng22z@mtholyoke.edu) or Aya (takiueo.dango@gmail.com) by July 12th with the cases you are interested in (please pick more than one because you may not get your first choice), and we will confirm with you by July 15th. If we do not hear back from you by July 12th, we will assign you a case by email on July 15th. After getting your case, please fill out the worksheet that we will send you in the beginning of July and bring it to class on first day. You do not have to write in full sentences; answers in bullet points and key words are sufficient.
2. Watch this TED talk about memory and be ready to talk about how witnesses' error may influence the judge's decision. The video is around 16 minutes long. Feel free to use the Japanese subtitles: How reliable is your memory?
3. Find some media related to crime and read or watch it. It can be a part of manga or novel, or an episode of anime or TV show (for example, anything related to Sherlock Holmes, an episode from Detective Conan, or some part from Keigo Higashino's book etc.). Be ready to share with your peers about what you read or watched. Please don't spend more than 30 minutes on this assignment.

Optional:

Read this article about the CSI Effect and think about whether you have ever been influenced by the media:

The CSI Effect



Along with Assignment 3, think about the parts in the media entertainment that may have misled your expectations of forensic science.

Message from the House Leader

Hey guys! I'm Aya and I'm going to be your HL during KSS. I'm a sophomore at Tsuda College, in the department of International and Cultural studies. I'm mainly studying cultural anthropology and emigration of turks. In my leisure time I like to travel and stay at a guest house. I have never studied about Forensic Science so I'm really interested and excited for the seminar!! I'll try my best to help you guys in anything. Hope to see you guys!!

Message from the Seminar Leader

Hi everyone! My name is Ziyang (Jessica) and I just finished my first year at Mount Holyoke College. I am studying computer science, and am considering a double major in neuroscience or East Asian Study. Apart from my majors, I enjoy running, playing tennis, and traveling around. Forensic Science has always been a fascinating field for me since middle school, and I finally got a chance to take a seminar course on it in my freshman year. I hope you will enjoy this class just like I did, and it is nice to meet all of you!