

A Career in Digital Forensics:

How Computer Forensics Relates to the Social Sciences

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CYSE 201S: Cybersecurity and Social Science

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1. What is a career in digital forensics?

The cybersecurity field has many different areas of concentration one can choose to pursue. This author chose to discuss the career of digital forensics because they are currently pursuing a certification in digital forensics as well as a minor in cybercrime to go with their B.S. in cybersecurity at Old Dominion University.

According to the National Institute of Science and Technology, digital forensics uses many methods and applications to assist in the identification, collection, examination, and analysis of data on computers and other devices while preserving the integrity of the evidence (*Digital Forensics / NIST*, 2018). There are many different roles one can pursue in the digital forensics' world, such as digital forensic analyst, intelligence analyst, and forensic science technician (*Digital Forensics (Certificate)*, 2023).

2. What social science research and principles are used that relate to this profession?

In module 1 we learned about the different groups that belong to the social sciences (Duvall, T. (n.d.)). These groups were anthropology, criminology, economics, geography, political science, psychology, and sociology. The closest group relating to this career is criminology as studying the crimes and criminals are a major factor in collecting and gathering the evidence. However, sociology, psychology, and even political science play a great part in digital forensics. Sociology correlates the investigators and/or analysts to society or communities for research and is also impacted by the outcome of new laws. Psychology is used to understand why cybercrime occurs and gain a better understanding of the offender's mindset for studies. Lastly, digital forensics is connected to the judicial system and new laws and policies affect the analyst and the research.

Criminology in this profession is essential as the collection and analysis completed are related to evidence used in the judicial system. While digital forensics can include combing through online servers and items taken into evidence for criminal cases; it can also include DNA, fingerprints, and voice analysis. At ODU, a principal class required for a B.S. in Cybersecurity a student must take CYSE 406: Cyber Law. This class discusses many laws and complications surrounding cybercrime and digital privacy. Technology is evolving at a quick pace, and this can cause challenges with creating and enacting regulations. The criminal justice system and digital analysts must work together to respect ethnic boundaries and federal laws while keeping up with the rapid growth of cyberspace.

In module 3 of CYSE 201S (Duvall, T. (n.d.).), the different research methods used to relate cybersecurity and the social sciences are discussed. The methods touched on in the module are surveys, experiments, archival research, field studies, and multimethod research. Whether to find ways of adapting or changing the current procedures used in the field of digital forensics or studying the patterns of criminal actions for future research or implementation (Kloosterman et al., 2015). To learn more about how these research methods can be applied in forensic science please read “Social Science Research on Forensic Science: the story behind one of NIJ’s newest research portfolios ¹” which can be found in the reference list below.

3. How are the social science principles applied in this career?

In CYSE 201S module 2 (Duvall, T. (n.d.)), six different principles of social science were examined to help understand cybersecurity's relationship to the social sciences. The module explained each principle while listing perspectives from different groups mentioned above. The principles of science are as follows: relativism, objectivity, parsimony, skepticism, ethical neutrality, and determinism.

Relativism is needed in this career as different jurisdictions can include different frameworks and one acknowledging this can determine the accuracy and fairness of the investigation. Objectivity and remaining ethically neutral must be adhered to give access to a fair trial and maintain the integrity of the evidence and case. The principle of determinism can give clarity on contributing factors for lawbreaking by uncovering underlying causes or parties. Lastly, when analysts or investigators apply Occam's razor (parsimony) they can prioritize questions and the skepticism can allow critical thinking and increase the authentication of information discovered.

4. How does this career affect or contribute to marginalized groups and society?

This field relates to many marginalized groups or victims of cyberbullying, harassment, hate crimes, etc. This path can help contribute to catching the offenders while also procuring new security or privacy policies to help decrease future victims. Racial profiling and system injustice are still topics mentioned in today's environment. Digital forensics works closely with the evidence to minimize wrongful convictions and decrease the number of victims who otherwise could go to prison. The career of digital forensics promotes trust in marginalized groups and the public that the correct offender is caught while also promoting equality throughout the criminal justice system.

This profession can help individuals feel confident when reporting cybercrimes as analysts adapt and increase their methods to best help the communities. Law enforcement can struggle with online sources of information or overwhelming online evidence that they may be unclear on how to process. Limiting law enforcement's jurisdiction to physical evidence diminishes prejudice and wrongful convictions.

5. What aspects of this profession directly correlate to class modules and concepts?

A complete list of modules covered in this class of CYSE 201S are below:

Module 1: Introduction to the social sciences

Module 2: Principles of social sciences and cybersecurity

Module 3: Strategies to Study Cybersecurity through an Interdisciplinary Social Sciences
Lens

Module 5: Applying Psychological Principles of Cyber Offending, Victimization, and
Professionals

Module 10: Social cybersecurity

Modules 12 & 13: Conceptualizing Cybersecurity as a Crime –Parts 1 & 2

Module 14: Studying and Addressing Cyber Harm through a Criminological and
Political Framework

Resources

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¹*Social Science research on forensic Science: the story behind one of NIJ's newest research portfolios / National Institute of Justice*. (n.d.). National Institute of Justice.

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