

CYSE 201S Journal Entry

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Journal Title: Scientific Principles in Cybersecurity

Understanding the principles of science helps explain how cybersecurity works in the real world. These principles guide how we analyze threats, respond to attacks, and protect systems.

Relativism means that truth depends on the situation. In cybersecurity, this appears when different organizations define "risk" differently based on what they need to protect.

Objectivity means focusing on facts and evidence. Cybersecurity professionals use system logs and digital traces to analyze incidents, not assumptions or personal bias.

Parsimony is about choosing the simplest explanation that fits the facts. For example, if an account is breached, a weak password is a more likely reason than a state-sponsored hack.

Skepticism keeps professionals from blindly trusting alerts or claims. Instead, they verify and investigate before acting, helping prevent false alarms or mistakes.

Ethical neutrality means analyzing without judging. Studying hacker behavior is not about supporting it, but understanding it so defenders can build better protections.

Determinism means every effect has a cause. A system doesn't crash randomly—there's always a reason, like malware, a bug, or a security gap.

Replicability ensures that results can be repeated. If a security test finds a vulnerability, running it again under the same conditions should show the same weakness.

These principles support better cybersecurity by encouraging professionals to think critically, rely on facts, and always look deeper for causes.

References

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