

Cumulative Reflection

By Steven Ragan

Over my 4 years at Iowa State University, I've been lucky enough to experience many different classes. These classes have helped me in many other aspects. Firstly, these classes help me not only gain a deep understanding of my major but also an understanding of the societal and global aspects. Secondly, the in-class projects and experiences help me learn the necessary problem-solving skills. Lastly, they also help me pursue learning and learning activities outside of class on my own time to produce more excellent work throughout my time here. So, let's discuss my growth in these aspects that ISU has helped me with.

Starting with how ISU has helped me gain a deep understanding of societal and global aspects by providing me with exposure through my classes. There are mainly two classes that gave me this understanding, RUS 375 Russia Today and POLS 318 Campaigns and Elections. Russia Today gave me a sense of global and societal aspects through topics such as "The Downfall of soviet Russia" and "Freedom of Expression within Russia." Campaigns and Elections mainly gave me an understanding of societal and economic aspects, such as "funding an election". These two classes covering economic, global, and societal aspects show that it has given me a deeper understanding through exposure. Now, let's move on to how ISU helped with my problem-solving skills.

Throughout my 4 years, ISU has helped me with my problem-solving skills with course projects. One of the main courses that did help was CprE 288 Embedded Systems, this class went over basic information on embedded systems and how to make them. Embedded Systems had a cumulative project that was designing an autonomously controlled robot; think of it like a Roomba. Our task was to create software that would use aspects of the given robot, such as distant detectors and bump sensors. To finish the project, we had to face a couple of problems. Firstly, we didn't know how the sensors worked, and secondly, we didn't know how they all connected to the software we were designing. After recognizing this problem, I decided we needed to step back and go thorough testing on how to work each sensor. Doing this gave us an understanding of the sensors and how to use them, allowing us to complete the project. This shows that ISU has helped me with my problem-solving skills by giving me projects to practice these skills, such as taking a step back and evaluating the problem. Since I've covered things I have learned within ISU, it's important to start discussing what I've learned outside of ISU and how ISU has helped me with that.

Some classes at ISU are good at giving you basic information so that you can complete the task in your way by learning through external resources. One class that I experienced this in would be Cpre E

440 Operating System Security. Throughout the class, we were tasked with are tasked with implementing security practices on given kernels, such as Sel4, a microkernel. For me to complete these, I found myself reading many stack overflows and error help forms, learning the error codes that were causing kernel panics and ways to speed up my code. Another example would be my Cyb E intro classes Cyb E 230 Cyber Security Fundamentals and Cyb E 231 Cyber Security Concepts and Tools. Within both of these classes there are final projects where we use Cyber Security tools to secure or break into given computer systems. To use these tools, I watched YouTube tutorials, which became a huge help and showed me what I needed to do with tools like Netstat and Airededdon. These examples show that ISU has helped me learn outside of class by using external sources to complete projects. Before concluding, I think I should go over some other things that ISU has done for me, mainly giving me awareness of learning activities outside of the classroom.

ISU has given me awareness of activities outside of the classroom through public message boards. For example, I've been a member of the cyber security club here for 2 years. It has also led me to pursue learning activities such as Hack the Box, leading me to join other communities filled with cybersecurity engineers. The engineering career fair has also led to me participating in many different company events during my time here.

In conclusion, ISU has contributed to my growth in many ways, from class projects to making me aware of outside the classroom. With all that I have learned in the past four years, one thing remains at the forefront of my mind: I will need to continue learning and growing. I say this because even within a quick 4 years, there have been many changes to how things are done within the cyber field and how problems should be solved. That said, I must not only remember what I've learned here at ISU but be able to grow and adapt to the changes in the world.