**Memo**

**To:** Pre-major students deciding on a major.

**CC:** Academic Advisor

**From:** William Sun

**Date:** October 10th, 2023

**Subject:** Choosing between Computer Science and Applied Computing majors

**Introduction**

For Pre-Major students’ having a hard time deciding between Computer Science and Software Engineering (CSSE) and Applied Computing(AC). Table 1 compares the Computer Science and Software Engineering major and Applied Computing major using the following criteria: same and different prerequisites, departmental requirements, average entrance GPA, graduation requirements, minor requirements, and what to expect for future job titles and opportunities after graduation.

**Comparison**

**Table 1:** **Comparison between CSSE major and AC major**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Computer Science and Software Engineering[3]** | **Applied Computing[2]** |
| Same prerequisites | * English Composition * Calculus I * Statistics * Programming 1&2 | * English Composition * Calculus I * Statistics * Programming 1&2 |
| Different prerequisites | * Advanced Composition or Intro. to Technical Writing * Calculus II | * N/A |
| **Requirements for graduation** | | |
| Same departmental requirements | * Technical Writing * Mathematic Principles of Computing * Management Principles * Software Engineering | * Technical Writing * Mathematic Principles of Computing * Management Principles * Software Engineering |
| Different departmental requirements  **Criteria** | * Data Structures & Algorithms   **Computer Science and Software Engineering** | * Hardware and Operating Systems   **Applied Computing** |
| Different departmental requirements | * Analysis and Design * Hardware & Computer Organization * Operating Systems   Capstone | * Senior Seminar |
| CSS level 400 Electives(credit) | 15 | 10 |
| CSS level 300+ Electives (credit) | 0 | 5 |
| CSS level 200+ Electives(credit) | 10 | 10 |
| General Elective level 400(Credit) | 0 | 0 |
| General Elective level 300+ (credit) | 15 | 10 |
| General Elective level 200+ (credit) | 0 | 0 |
| Average entrance GPA | 3.6 | 3.3 |
| Minor requirement | N/A | Required |
| **Job market after graduation** | | |
| Most common job titles | * Software Engineer * Data Scientist * Web Developer * Game Developer * Database Management Engineer | * Software Engineer * Project Manager * Technical Program Manager * Tech Sales Representative * Data Analyst * Technical Recruiter |
| # of job opportunities in 2022 | 147,400 [1] | 149,300[4] |
| Sources:  [1] “Computer Programmers : Occupational Outlook Handbook.” U.S. Bureau of Labor Statistics, U.S. Bureau of Labor Statistics, 6 Sept. 2023  [2] “Curriculum Overview.” School of Science, Technology, Engineering & Mathematics, 5 Sept. 2023  [3] “Curriculum Overview.” School of Science, Technology, Engineering & Mathematics, 15 Aug. 2023  [4] “Database Administrators and Architects : Occupational Outlook Handbook.” U.S. Bureau of Labor Statistics, U.S. Bureau of Labor Statistics, 6 Sept. 2023  [5] UW Extended Campus. “Computer Science or Applied Computer Science: What’s the Difference?” UW Extended Campus, 27 July 2022 | | |

**Conclusion**

The Computer Science and Software Engineering major and Applied Computing major differ in the average acceptance GPA, departmental requirements, elective level requirements, Minor requirements, graduation requirements, and future job titles and opportunities.[3]

* If you want pure software engineering, and coding. Go with CSSE.
* If your future job is to be purely in the Software Engineering/Development realm, go with CSSE.
* If you find that coding is easy and needs more of a challenge, go with CSSE.
* If you are more interested in software development and research, go with CSSE.
* If you don’t have a preference, go with CSSE then minor in Business Administration to maximize future job opportunities for you.
* If you are more interested in the management and planning aspects of the software development process, then go with AC.
* If you are interested in being a technical program manager, then go with AC.
* If you are more interested in the communications aspect of Software Engineering, go with AC.
* If you have other interests outside of Software Engineering, go with AC.
* If you have a lower GPA and still want a major that delves in the Software Engineering realm, go with AC.
* If calculus is a hard subject to follow, then go with AC.

**Recommendations**

I recommend applying for the Applied Computing Major. Being able to learn a decent amount about Software Engineering, while having the option to pursue other realms of studies that interest you is beneficial for the job market in the future, as you would be well versed in a wider array of skills that would open more doors for the future job market. If you decide to pursue Software Engineering full time, then you will already have the basic skills needed to succeed in the field as well.

**References**

[1] “Computer Programmers : Occupational Outlook Handbook.” U.S. Bureau of Labor Statistics, U.S. Bureau of Labor Statistics, 6 Sept. 2023, www.bls.gov/ooh/computer-and-information-technology/computer-programmers.htm.

[2] “Curriculum Overview.” *School of Science, Technology, Engineering & Mathematics*, 5 Sept. 2023, www.uwb.edu/stem/undergraduate/majors/applied-computing/curriculum.

[3] “Curriculum Overview.” *School of Science, Technology, Engineering & Mathematics*, 15 Aug. 2023, www.uwb.edu/stem/undergraduate/majors/bscsse/curriculum.

[4] “Database Administrators and Architects : Occupational Outlook Handbook.” U.S. Bureau of Labor Statistics, U.S. Bureau of Labor Statistics, 6 Sept. 2023, www.bls.gov/ooh/computer-and-information-technology/database-administrators.htm#tab-6.

[5] UW Extended Campus. “Computer Science or Applied Computer Science: What’s the Difference?” *UW Extended Campus*, 27 July 2022, uwex.wisconsin.edu/stories-news/applied-computer-science-vs-computer-science/.

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