## Bachelor of Applied Science Degree (BAS)
## APPLICATION DEVELOPMENT

### Program Planning Sheet (Scope & Sequence)

The BAS in Application Development is a degree is designed to prepare students for entry-level positions in software development careers by providing industry-relevant applied education in application development. Instruction focuses on current industry trends including web, cloud and mobile applications, as well as industry practices such as Agile and collaborative development. A strong emphasis on industry-based projects throughout the program will prepare graduates to meet current and future industry needs and emerging software trends.

**Prerequisites for Admission:**

- **Applicants must have an associate's degree (or equivalent credits) from a regionally accredited institution with a minimum cumulative 2.5 GPA and a 2.5 GPA or higher in all IT courses. Any General Education Requirements taken as part of the associate degree can be transferred in to the requirements below.**

- **The following courses are prerequisites (equivalent courses may be substituted):**

| Example Course Numbers | | | PREREQUISITES | CREDIT HOURS |
|---|---|---|---|---|
| **North** | **Central** | **South** | **PREREQUISITES – IT Courses:** | |
| IT 102, IT 115, IT 162, CSC 110, CSC 142 | CSC 110, CSC 142, ITC 110, ITC 115, ITC 172, or ITC 240 | CSC 110, CSC 142, CTN 131 | **Programing:**<br>- 5 credits of Object-oriented programming strongly recommended | 10 |
| IT 125 | ITC 220 or ITC 222 | CTN 121 | **Database Development / Programming in SQL.** | 5 |
| IT 111 | WEB 110 or ITC 240 | CTN 160 | **Web programming / development** | 5 |
| | | | **PREREQUISITE – Gen Ed:** | |
| College Level Mathematics<br><br>- Calculus Recommended | College Level Mathematics<br><br>- Calculus Recommended | College Level Mathematics<br><br>- Calculus Recommended | **Quantitative/Symbolic Reasoning (QSR)**<br>- College Level Mathematics<br>- Statistics or Calculus Recommended | 5 |
| English / Communication Courses | English / Communication Courses | English / Communication Courses | **Communication Skills**<br>- ENGL& 101 | 5 |

| COURSE NUMBER | GENERAL EDUCATION/RELATED INSTRUCTION REQUIREMENTS (60 CREDITS MINIMUM) | LECTURE HOURS | LAB HOURS | CREDIT HOURS |
|---|---|---|---|---|
|  | **Typically 15 or more of the following credits must be completed before beginning AD-BAS degree** |  |  |  |
|  | **Prerequisite Courses**<br>- Communication skills (ENGL& 101)<br>- College Level Mathematics | 110 |  | 10 |
| English / Communication Courses | **Communication Skills**<br>- 5 credits in a composition, writing-intensive, or basic speaking skills course. | 55 |  | 5 |
| Any physical, biological, or earth sciences | **The Natural World**<br>- At least one 5 credit lab class required. See list on page 4 for acceptable courses | Varies | Varies | 10 |
| Humanities | **Visual, Literary, and Performing Arts**<br>- See list on page 4 for acceptable courses | 110 |  | 10 |
| Social Sciences | **Individuals, Cultures, and Societies**<br>- See list on page 4 for acceptable courses | 110 |  | 10 |
| Other General Education Credits | **Gen Ed Courses suited for AD-BAS Degree:**<br>- credits may be selected to best suit the needs of the baccalaureate program | 165 |  | 15 |
| **TOTAL** |  |  |  | **60** |

| COURSE NUMBER | DEGREE/CERTIFICATE REQUIREMENTS (CREDITS) | LECTURE HOURS | LAB HOURS | CREDIT HOURS |
|---|---|---|---|---|
| AD 300 | - Component Software | 55 |  | 5 |
| AD 310 | - Software Lifecycle | 55 |  | 5 |
| AD 315 | - Discrete Mathematics (Natural science Gen Ed) | 55 |  | 5 |
| AD 320 | - Web Application Development | 55 |  | 5 |
| AD 325 | - Data Structures and Algorithms (Prereq: AD 300 or CSC 143) | 55 |  | 5 |
| AD 330 | - Professional Communication in IT (Hum. Gen Ed) | 55 |  | 5 |
| AD 340 | - Mobile Application Development | 55 |  | 5 |
| AD 350 | - Relational Database Technology | 55 |  | 5 |
| AD 400 | - Project Management in Software Development | 55 |  | 5 |
| AD 410 | - Web Application Practicum |  | 165 | 5 |
| AD 420 | - Cloud Computing – Software as a Service | 55 |  | 5 |
| AD 430 | - Mobile Application Practicum |  | 165 | 5 |
| AD 440 | - Cloud Computing Practicum |  | 165 | 5 |
| AD 490 | - Internship – or – Capstone |  | 165 | 5 |
| **TOTAL** |  |  |  | **70** |

| COURSE NUMBER | ELECTIVES (CREDITS) | LECTURE HOURS | LAB HOURS | CREDIT HOURS |
|---|---|---|---|---|
| Varies | Includes any credits taken towards the associate degree and/or technology prerequisites | varies | varies | **50** |
| **TOTAL CREDITS FOR DEGREE** |  |  |  | **180** |

**Suggested Sequence for the Full-Time Student:**

| Fall, year 1 | Winter, Year 1 | Spring, Year 1 |
|---|---|---|
| Component Software (5) – AD 300 Or Programming II (5) – CSC 143<br>Prereq: Program entry | Data Structures and Algorithms (5) – AD 325<br>Prereq: AD 300 or CSC 143 | Mobile Application Development (5) – AD 340<br>Prereqs : AD 320 & AD 325 |
| Software Lifecycle (5) – AD 310<br>Prereq: Program entry | Relational Database Technology (5) – AD 350<br>Prereq: Program entry | Web Applications Practicum (5) – AD 410<br>Prereqs: AD 320 & AD 310 |
| Discrete Mathematics (5) – AD 315<br>Prereq: Program entry | Web Application Development (5) – AD 320<br>Prereq: Program entry | Gen Ed (5) |

| Fall, Year 2 | Winter, Year 2 | Spring, Year 2 |
|---|---|---|
| Cloud Computing – Software as a Service (5) – AD 420<br>Prereqs: AD 320 & AD 325 | Professional Communication in IT (5) – AD 330<br>Prereq: Program entry | Internship – or – Capstone (5) – AD 490<br>Faculty permission |
| Mobile Application Practicum (5) – AD 430<br>Prereqs: AD 340 & AD 310 | Cloud Computing Practicum (5) – AD 440<br>Prereqs: AD 420 & AD 310 | Project Management in Software Development – AD 400<br>Prereq: Completed at least one practicum |
| Gen Ed (5) | Gen Ed (5) | Gen Ed (5) |

**Potential Sequence for the Part-Time Student:**

| Fall, year 1 | Winter, Year 1 | Spring, Year 1 |
|---|---|---|
| Component Software (5) – AD 300<br>Prereq: Program entry | Web Application Development (5) – AD 320<br>Prereq: Program entry | Web Applications Practicum (5) – AD 410<br>Prereqs: AD 320 & AD 310 |
| Software Lifecycle (5) – AD 310<br>Prereq: Program entry | Data Structures and Algorithms (5) – AD 325<br>Prereq: AD 300 or CSC 143 | Gen Ed (5) |
| | | |

| Fall, Year 2 | Winter, Year 2 | Spring, Year 2 |
|---|---|---|
| Cloud Computing – Software as a Service (5) – AD 420<br>Prereqs: AD 320 & AD 325 | Cloud Computing Practicum (5) – AD 440<br>Prereqs: AD 420 & AD 310 | Mobile Application Development (5) – AD 340<br>Prereqs : AD 320 & AD 325 |
| Discrete Mathematics (5) – AD 315<br>Prereq: Program entry | Relational Database Technology (5) – AD 350<br>Prereq: Program entry | Gen Ed (5) |

| Fall, year 3 | Winter, Year 3 | Spring, Year 3 |
|---|---|---|
| Mobile Application Practicum (5) – AD 430<br>Prereqs: AD 340 & AD 310 | Professional Communication in IT (5) – AD 330<br>Prereq: Program entry Prereq: Program entry | Internship – or – Capstone (5) – AD 490<br>Faculty permission |
| Gen Ed (5) | Gen Ed (5) | Project Management in Software Development – AD 400<br>Prereq: Completed at least one practicum |

# Areas of Knowledge Distribution Requirements for BAS degree

## VISUAL, LITERARY, AND PERFORMING ARTS (Humanities and Arts) 10 CREDITS

Choices must include a minimum of *two different course prefixes*. No more than 5 credits of a studio/performance class (*asterisked below) may be used in this category. No more than 5 credits of a world language at the 100 level may be used in this category.

Art: ART &100, 101*, 102*, 103*, 104, 105, 110*, 111*, 112*, 113*, 114*, 115,* 121*, 122*, 123*, 163, 166*, 170, 201*, 202*, 203*, 205*, 206*, 207*, 210*, 211*, 212*, 213*, 214*, 215*, 216*,217*, 221*, 222*, 223*, 251, 252, 253, 254, 255, 281*, 282*, 283*, 284*, 285*, 290, 291
American Sign Language: ASL &121, &122, &123, 210, &221, &222, &223
Chinese: CHIN &121, &122, &123, &221, &222, &223
Communication: CMST &101, &102, 115, 145, 155, 175, 185, 195, 205, &210, 215, &220, &230, 235, 245, 255, 265, 275, 285, 295
Drama: DRMA &101, 103, 105, 108*, 109*, 110*, 112, 114*, 116*, 120*, 121*, 122*, 123*, 131, 182*, 204*, 205*, 206*, 221*, 222*, 223*, 284, 285, 286
English: ENGL 104, 109, &111, &112, &113, &114, 117, 151, 152, 153, 201, 204, 205, 214, 218, 219, &224, &225, &226, &227, &228, 231, 232, 233, &235, 240, 241, &244, &245, &246, 251, 252, 253, &254, &256, 257, 258, 259, 260, 263, 265, 266, 267, 270, 291, 292, 293

French: FRCH &121, &122, &123, 204, 205, 206, 212, &221, &222, &223, 231, 232, 233
German: GERM &121, &122, &123
Humanities: HUM 104, 105, 110, 115, &116, &117, &118, 120, 125, 130, 135, 140, 150, 160, 200, 210, 234, 261, 270
Italian: ITAL 121, 122, 123
Japanese: JAPN &121, &122, &123, &221, &222, &223
Journalism: JRN 101, 102, 103
Linguistics: LAN 101, 110
Literature: LIT 236, 238
Music: MUSC 100, &105, 106, 109, 110, 113, 116, 117, 119*, 120*, 125, 126*, 127*, 128*, 130*, 134 - 140*, &141, &142, &143, 144*, &145, 146*, 147*, 148*, 150*, 151*, 156*, 157*, 158*, 160, 161, 163, 164*, 165*, 166*, 171*, 172*, 173*, 182*, 185, 204, 205, 213, 221*, 222*, 223*, &231, &232, &233
Russian: RUSS &121, &122, &123
Spanish: SPA &121, &122, &123, &221, &222, &223, 236, 238
Vietnamese: VIET &121, &122, &123

## INDIVIDUALS, CULTURES, AND SOCIETIES (Social Sciences) 10 CREDITS

Choices must include a minimum of *two different course prefixes*.

American Ethnic Studies: AME 150, 151, 160, 201
Anthropology: ANTH &100, &106, 113, &125, 130, 135, 201, &206, &210, 211, 212, 213, &216, &227, &228, 275
American Sign Language: ASL 120, 125
Biology: BIOL 150
Economics: ECON 100, 102, &201, &202, 240
Environmental Science: ENV 150, 160, 170, 200, 202, 206, 208, 214, 294
Environmental Science: ENVS &101
Geography: GE0G 100&, 155, 200&, 205, 207, 230, 260
History: HIST 105, 106, 108, 120, &126, &127, &128, 131, &136, &137, 138, 140, 145, &146, &147, &148, 150, 191, 200, 208, 210, 211, 212, &214, &219, 221, 230, 241, 242, 251, 268, 269, 273
International Studies: ISP 101, 105, 110, 120, 160, 170, 201, 205, 210, 220, 234, 251, 255, 260, 261, 270

Philosophy: PHIL &101, 102, 110, 111, 118, 160, 215, 220, 240, 245, 250, 255, 267
Political Science: POLS &101, 111, 112, 170, &200, &202, &203, 205, 206, 213, 220, 255
Psychology: PSYC &100, 120, &200, 205, 207, 209, 210, 217, &220, 230, 235, 245, 250, 255, 257, 294
Religion: REL 150, 151
Sociology: SOC &101, 102, 105, 106, 107, 120, 130, 150, 170, &201, 220, 230, 245, 250, 253, 265, 275, 280
Social Science: SSC 101, 103, 187
Social Welfare: SWF 200
Women's Studies: WMN 140, 200, 205, 213, 257

## THE NATURAL WORLD (Natural and Physical Sciences) 10 CREDITS

You are required to complete 10 credits from the courses below. Choices must include a minimum of *two different prefixes*; five credits must be in a lab science (*asterisked below).

Anatomy & Physiology: BIOL 128*, &241*, &242*
Astronomy: ASTR &100, 102, 104, &110*, 201
Biology: BIOL &100*, 102*, 106*, 107*, 109, 120*, 125*, 130*, 150, &160*, 161*, 195, 196, &211*, &212*, &213*, 228*, 229*, 239*, &260*, 282*, 285*, 286*, 287*, 290, SPS 201*
Botany: BOT 110*, 112*, 113*
Chemistry: CHEM 106*, &110*, &121*, &122*, &123*, &131*, &139*, &161*, &162*, &163*, 191*, 192*, 211*, &241*, &242, &243*, &251*, &252*, 255, 256
Environmental Science: ENV 150, 160, 170, 201, 202*, 203, 204*, 205, 206*, 208, 216*, 221, ENVS &101*

Geology: GEOL &101*, &103*, 104, 105*, 106, 108*, &110*, 111*, &115*, 118*, 202*, 207*, &208*
Health: HEA 125, 150, 160 , 225, 228
Meteorology: MEY 100
Material Science: MSC 101
Nanotechnology: NANO 101*
Nutrition: NTR 105*, 150, 155
Oceanography: OCEA  100, &101*
Physics: PHYS &100, 107*, &114*, &115*, &116*, &221*, &222*, &223* Science: SCI 100, 101*, 104, 107*110*, 111*, 112*, 113*, 114*, 115*, 116*, 117*, 118*, 119*, 121*, 129*, 131*
Sustainability: SUST 101

**Courses with "&" are associated with a new statewide common course numbering system.
Visit www.seattlecolleges.edu/commoncoursenumbering/ for more information.**