

13. Additional Information: This new proposed concentration in ICT complements the existing two concentrations in Biological Science and Physical Science, as shown in page 22-23 of the UHMC 2015-16 catalog. All existing course requirements listed in page 22 will remain identical except for the bottom section on Additional ASNS Requirements. Propose we add one course - ICS 110 or Intro to Programming (3) to the list. On page 23, the ICT Concentration will include 5 core ICS courses (ICS 111, 141, 211, 212 and 241) for 17 credits. In addition there are ICT electives for students or a minimum of 13 credits.

Natural Science

The Associate in Science degree in Natural Science (ASNS) provides a comprehensive background in science and math courses and is designed specifically for students who are planning to transfer to baccalaureate degree programs in science, technology, engineering, or mathematics (STEM). Students may choose to concentrate in either the biological sciences or the physical sciences.

Associate in Science Degree in Natural Science						
(Name: Last, First, Middle Initial)			(UHID Number)			
Graduation Requirements						
CREDITS						
<input type="checkbox"/> Minimum Applicable: 60 credits, 100-level or higher						
GRADES						
<input type="checkbox"/> Minimum Cumulative GPA: 2.0						
RESIDENCY						
<input type="checkbox"/> Minimum UHMC: 12 credits						
WRITING INTENSIVE (WI): Two courses						
<input type="checkbox"/> 1 _____						
<input type="checkbox"/> 2 _____						
English: 6 credits		Course	Credits	Grade	Semester	Year
ENG 100(3)						
Choose at least one course from the following(3): ENG 106, ENG 209, ENG 210, ENG 225, SP 151, SP 251.						
Quantative Reasoning: 4 credits		Course	Credits	Grade	Semester	Year
MATH 205(4)						
Humanities Elective: 3 credits		Course	Credits	Grade	Semester	Year
Choose at least one course from the following(3): ANTH 235, ART, BUS/COM 130, DNCE, DRAM, EALA, ENG 104, ENG 250-257, FIL, HAW, HWST(except 211), HIST, HUM, ILO, JPNS, LING, MUS; PHRM 203; PHIL, REL, SPAN, SP; SSM 101, 201, 202.						
Natural Science Electives: 8 credits		Course	Credits	Grade	Semester	Year
CHEM 161(3)						
CHEM 161L(1)						
Electives(4) selected from this list: AG 122, 174, 200, 265; ANTH 215; ASTR; BIOC; BIOL; BOT 101; FSHN; GEOG 101, 101L; GG; MICR; OCN 201, 201L; PHRM 203; PHYS; SCI; SSM 101, 201, 202; ZOOL.						
Social Science Electives: 3 credits Choose at least one course from the following(3):		Course	Credits	Grade	Semester	Year
ANTH (except 201L, 215 & 235); BOT 105, COM (except BUS/COM 130), ECON, FAMR 230; GEOG (except 101, 101L); HWST 211; PACS, POLS, PSY, SSCI, SOC.						
Additional ASNS Requirements: Biological 7-8 credits; Physical 7 credits		Course	Credits	Grade	Semester	Year
CHEM 162(3)						
CHEM 162L(1)						
ICS 101(3); GIS/ICS 150(4), 180(4); or other with approval						

Biological Science Concentration					
Biological Concentration Requirements: 16-17 credits					
	Course	Credits	Grade	Semester	Year
	BIOL 171(3)				
	BIOL 171L(1)				
	BIOL 172(3)				
	BIOL 172L(1)				
	PHYS 151(4) or 170(5)				
	PHYS 152(4) or 272(4)				
Biological Concentration Electives: 13-14 credits					
	Course	Credits	Grade	Semester	Year
	If not taken for Natural Science elective, choose from: AG 122(3), 174(3), 200(4), 265(4); ANTH 210(3), 210L(1), 215(3); AQUA 362, 466; ASTR 110(3), 110L(1); BIOC 241(3), 244(3); BIOL 100(3), 101(4), 102(4), 103(4), 105(4), 124(3), 124L(1), 151(3), 152(3), 200(4), 225(4), 226(5), 265(3), 282(3), 361(3), 424(3); BOT 101(4); FSHN 185(3), 285(3), 286(3); GEOG 101(3), 101L(1); GG 101(4), 103(3); GIS/ICS 150(4), 180(4); MATH 206(4), 231(3), 232(3); MICR 130(3), 140(2); OCN 201(3), 201L(1), 250(3), 351; PHRM 203(3); SCI 121(4), 122(3); SSM 101(3), 201(3), 202(3); ZOOL 101(4), 141(4), 142(4), 200(4).				
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Physical Science Concentration					
Physical Concentration Requirements: 13 credits					
	Course	Credits	Grade	Semester	Year
	MATH 206(4)				
	PHYS 170(5)				
	PHYS 272(4)				
Physical Science Concentration Electives: 17 credits					
	Course	Credits	Grade	Semester	Year
	If not taken for Natural Science elective, choose from: AG 122(3), 174(3), 200(4), 265(4); ANTH 210(3), 210L(1), 215(3); AQUA 362, 466; ASTR 110(3), 110L(1); BIOC 241(3), 244(3); BIOL 100(3), 101(4), 102(4), 103(4), 105(4), 124(3), 124L(1), 151(3), 152(3), 171(3), 171L(1), 172(3), 172L(1), 200(4), 225(4), 226(5), 265(3), 282(3), 361(3), 424(3); BOT 101(4); FSHN 185(3), 285(3), 286(3); GEOG 101(3), 101L(1); GIS/ICS 150(4), 180(4); GG 101(4), 103(3); MATH 231(3)*, 232(3)*; MICR 130(3), 140(2); OCN 201(3), 201L(1), 250(3), 351; PHRM 203(3); SCI 121(4) 122(4); SSM 101(3), 201(3), 202(3); ZOOL 101(4), 141(4), 142(4), 200(4) *Recommended				
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UHMC ASNS – ICT Concentration 2 Year Plan

This program map is based on the existing courses listed in page 22-23 of the UHMC 2015-16 Catalog.

1. Graduation Requirements – same as in page 22 of UHMC 2015-16 Catalog.
2. English Requirements (6) – same as in page 22 of UHMC 2015-16 Catalog.
3. Quantitative Reasoning (4) – same as in page 22 of UHMC 2015-16 Catalog.
4. Humanities Requirements (3) – same as in page 22 of UHMC 2015-16 Catalog.
5. Natural Science Electives (8) – same as in page 22 of UHMC 2015-16 Catalog.
6. Social Science Electives (3) - same as in page 22 of UHMC 2015-16 Catalog.
7. Additional ASNS Requirements – same as in page 22 of UHMC 2015-16 Catalog, need to take ICS 101. **Add ICT 7 Credits**
8. **Total Credits - 31**

In Page 23 add the following **ICT Concentration Requirements** (17 credits)

1. ICS 111 (4) - Intro to CS1
2. ICS 141 (3) - Discrete Math for CS1
3. ICS 211 (4) - Intro to CS2...prereq of 111
4. ICS 212 (3) - Program Structure...prereq of 211
5. ICS 241 (3) - Discrete Math for CS2...prereq of 141

In Page 23 add the following section **ICT Concentration Electives** (12 credits)

- ICS 110 (3) - Intro to Programming
- ICS 169 (3) - Intro to Info Sec
- ICS 184 (3) or ETRO 140 (4) - Intro to Networking
- ICS 171 (3) - Intro to Comp Sec
- ICS 281 (3) - Ethical Hacking
- ICS 282 (3) - Digital Forensics
- Plus the existing list of electives from Biological and Physical Science Electives in Page 23.
- Note the one Hawaiian, Asian, Pacific (HAP) course required

Semester 1 (17) English 100 (3) - FW MATH 205 (4) - FS CHEM 161/161L (4) - DP/DY ICS 110 (3) – ICT Elective ICS 101 (3) – Additional ASNS Requirement	Semester 2 (17) ENGLISH or SP Course (3) - FG1 - WI Humanities Elective (3) - DA, DH, DL ICS 111 (4) - ICT Concentration ICS 141 (3) - ICT Concentration CHEM 162/162L (4) - Additional ASNS Reqmnt
Semester 3 (14) ICS 211 (4) - ICT Concentration Natural Science Elective (4) - DB ICT Elective (3) ICT Elective (3)	Semester 4 (12) ICS 212 (3) - ICT Concentration ICS 241 (3) - ICT Concentration ICT Elective (3) Social Science Elective (3) - DS

ASNS
ICT Concentration

Natural Science

The Associate in Science degree in Natural Science (ASNS) provides a comprehensive background in science and math courses and is designed specifically for students who are planning to transfer to baccalaureate degree programs in science, technology, engineering, or mathematics (STEM). Students may choose to concentrate in either the biological sciences or the physical sciences.

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RESIDENCY						
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WRITING INTENSIVE (WI): Two courses						
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<input type="checkbox"/> 2 _____						
English: 6 credits		Course	Credits	Grade	Semester	Year
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Choose at least one course from the following(3): ENG 106, ENG 209, ENG 210, ENG 225, SP 151, SP 251.						
Quantitative Reasoning: 4 credits		Course	Credits	Grade	Semester	Year
MATH 205(4)						
Humanities Elective: 3 credits		Course	Credits	Grade	Semester	Year
Choose at least one course from the following(3): ANTH 235, ART, BUS/COM 130, DNCE, DRAM, EALA, ENG 104, ENG 250-257, FIL, HAW, HWST(except 211), HIST, HUM, ILO, JPNS, LING, MUS; PHRM 203; PHIL, REL, SPAN, SP; SSM 101, 201, 202.						
Natural Science Electives: 8 credits		Course	Credits	Grade	Semester	Year
CHEM 161(3)						
CHEM 161L(1)						
Electives(4) selected from this list: AG 122, 174, 200, 265; ANTH 215; ASTR; BIOC; BIOL; BOT 101; FSHN; GEOG 101, 101L; GG; MICR; OCN 201, 201L; PHRM 203; PHYS; SCI; SSM 101, 201, 202; ZOOL.						
Social Science Electives: 3 credits		Course	Credits	Grade	Semester	Year
Choose at least one course from the following(3): ANTH (except 201L, 215 & 235); BOT 105, COM (except BUS/COM 130), ECON, FAMR 230; GEOG (except 101, 101L); HWST 211; PACS, POLS, PSY, SSCI, SOC.						
Additional ASNS Requirements: Biological 7-8 credits Physical 7 credits		Course	Credits	Grade	Semester	Year
CHEM 162(3)						
CHEM 162L(1)						
ICS 101(3); GIS/ICS 150(4), 180(4); or other with approval						

* Insert... ICT 7 credits

Biological Science Concentration

Course	Credits	Grade	Semester	Year
Biological Concentration Requirements: 18-17 credits				
BIOL 171(3)				
BIOL 171L(1)				
BIOL 172(3)				
BIOL 172L(1)				
PHYS 151(4) or 170(5)				
PHYS 152(4) or 272(4)				

Biological Concentration Electives: 13-14 credits

If not taken for Natural Science elective, choose from: AG 122(3), 174(3), 200(4), 265(4); ANTH 210(3), 210L(1), 215(3); AQUA 362, 466; ASTR 110(3), 110L(1); BIOC 241(3), 244(3); BIOL 100(3), 101(4), 102(4), 103(4), 105(4), 124(3), 124L(1), 151(3), 152(3), 200(4), 225(4), 226(5), 265(3), 282(3), 361(3), 424(3); BOT 101(4); FSHN 185(3), 285(3), 286(3); GEOG 101(3), 101L(1); GG 101(4), 103(3); GIS/ICS 150(4), 180(4); MATH 206(4), 231(3), 232(3); MICR 130(3), 140(2); OCN 201(3), 201L(1), 250(3), 351; PHRM 203(3); SCI 121(4), 122(3); SSM 101(3), 201(3), 202(3); ZOOL 101(4), 141(4), 142(4), 200(4).				
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Physical Science Concentration

Course	Credits	Grade	Semester	Year
Physical Concentration Requirements: 13 credits				
MATH 206(4)				
PHYS 170(5)				
PHYS 272(4)				

Physical Science Concentration Electives: 17 credits

If not taken for Natural Science elective, choose from: AG 122(3), 174(3), 200(4), 265(4); ANTH 210(3), 210L(1), 215(3); AQUA 362, 466; ASTR 110(3), 110L(1); BIOC 241(3), 244(3); BIOL 100(3), 101(4), 102(4), 103(4), 105(4), 124(3), 124L(1), 151(3), 152(3), 171(3), 171L(1), 172(3), 172L(1), 200(4), 225(4), 226(5), 265(3), 282(3), 361(3), 424(3); BOT 101(4); FSHN 185(3), 285(3), 286(3); GEOG 101(3), 101L(1); GIS/ICS 150(4), 180(4); GG 101(4), 103(3); MATH 231(3)*, 232(3)*; MICR 130(3), 140(2); OCN 201(3), 201L(1), 250(3), 351; PHRM 203(3); SCI 121(4) 122(4); SSM 101(3), 201(3), 202(3); ZOOL 101(4), 141(4), 142(4), 200(4). *Recommended				
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xxx For ICT electives use this list but add the following (all 3 cr)
 ICS 110, ICS 169, ICS 184
 ICS 171, ICS 281, ICS 282

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3. Information and Communications Technology (ICT) Concentration
 4. ICT Requirements (17 credits)
 5. ICS 111 - Intro to Computer Science (4)
 6. ICS 141 - Discrete Math for Comp Sci (3)
 7. ICS 211 - Intro to Comp Sci 2 (4)
 8. ICS 212 - Program Structures (3)
 ICS 241 - Discrete Math for Comp Sci (3)
 * Insert ICT Electives (12 credits) ... add to list above xxx

Career & Technical Education

Career and Technical Education (CTE) programs offer the Associate in Science (AS) degree or the Associate in Applied Science (AAS) degree. Additionally, there is a customized degree opportunity, the Associate in Technical Studies (ATS).

Associate in Science

The Associate in Science (AS), a two year degree consisting of at least 60 credits entirely at the college level (100-level or above), provides students with skills and competencies for gainful employment.

At a Glance

Associate in Science (AS)

Dental Hygiene
 Early Childhood Education
 Electronic & Computer Engineering Technology
 Human Services
 General Human Services
 Substance Abuse Specialty
 Natural Science
 Biological Science
 Physical Science
 Registered Nurse

Insert...
 * Information & Communication

Associate in Applied Science

Technology
 (CCT)

The Associate in Applied Science (AAS), a two-year degree consisting of at least 60 credits entirely at the college level (100-level or above), provides students with skills and competencies for gainful employment. While this degree is not designed for transfer directly into a baccalaureate program, some AAS programs have agreements with baccalaureate degree-granting institutions, and some AAS programs may include some baccalaureate-level course offerings.

AS and AAS Requirements

- Satisfactory Completion of a CTE Major:**
 Specific courses for each major are described later in this section.
- General Education:**
 - Quantitative Reasoning: 3 credits**
 3 credits minimum.
Refer to Program Maps for program mathematics requirements. Graduation Requirement: If students seek to apply Philosophy 110 to fulfill the AS or

AAS degree requirement in Quantitative Reasoning, students must place into Mathematics 100 or higher.

- English/Communication: 6 credits**
 6 credits in English 100, 102, 104, 106, 209, 210; Learning Skills 110; Journalism 205; Speech 151, 251; Communication 145, 210; or Communication/Business 130.
 3 credits of the 6 must be ENG 100 or ENG 106.

Nursing AS degree requires only 3 credits in ENG 100.

Note: English courses that are numbered 250 or above can be counted only for Humanities requirements.

- Elective credits-AS: 12 credits**
Elective credits-AAS: 9 credits
 At least one 100-level course each from Humanities, Natural Science, and Social Science listed below. *For the AS degree and the AAS degrees that have 12 General Education elective credits, the remaining 3 elective credits may be selected from any area with the exceptions that: CTE majors may not select electives from CTE courses, and Business majors may not select electives from Business courses.*

Humanities:

Anthropology 235, Art/ICS 161, 205, Art, Business/Communication 130, Dance, Drama, East Asian Languages, English 104, 106, 209, 210, 250-257, Hawaiian, Filipino, Hawaiian Studies (except 211), History, Humanities, ICS 161, 205, Ilokano, Japanese, Linguistics, Music, Philosophy, Religion, Spanish, Speech, Telecommunications 261.

Natural Science:

Agriculture 122, 174, 200, 253, 265; Anthropology 210L, 215; Aqua; Astronomy 110, 110L; Biochemistry; Biology; Botany 101, 105L; Chemistry; Food Science & Human Nutrition 185, 285; Geography 101 & 101L; Geology & Geophysics; Hawaiian Studies 211L; Microbiology; Oceanography 201, 201L; Pharmacology 203; Physics; Science; Zoology SSM 201,202.

Social Science:

Anthropology (except 201L, 215, & 235); Botany 105; Communications (except 130); Economics; Family Resources 230, 244; Geography (except 101, 101L); Hawaiian Studies 211; Pacific Island Studies 108, Political Science; Psychology; Social Science; Sociology.

- Minimum of 60 credits:**
 These maximums may be applied:
 - 9 credits Cooperative Education;
 - 30 credits with CR grade.*Interdisciplinary Studies courses may be applied.
 60 credits for the AS degree must be at the 100-level or above.*
- Grade Point Average:**
 2.0 (C) or better.
- Residency Requirement:**
 12 credits toward a major must be earned at UH Maui College. The residency requirement may be waived for cause or credit-by-examination used with approval of the Vice Chancellor of Academic Affairs.
- Graduation Requirement:**
 To be awarded the AS or the AAS degree, students must complete an Application for Graduation form obtained from Student Services.
See Academic Calendar for deadline.

At a Glance

Associate in Applied Science (AAS)

Accounting
 Administration of Justice
 Agriculture & Natural Resources
 Horticulture & Landscape Maint
 Sustainable Tropical Crop Mgt
 Auto Body Repair & Painting
 Automotive Technology
 Business Careers
 Business Technology
 Information Processing
 Medical Assistant II
 Culinary Arts
 Baking
 Culinary Arts
 Fashion Technology
 Hospitality & Tourism
 Sustainable Construction Technology

solving. Covers the following applications: a micro-computer operating system, word processing, spreadsheets, graphics, and database management systems. 3cr., 3hr. lect./lab

116 Designing for Cross-Media: Publishing for Print & Web

Prereq: ICS 101 or BUSN 150, or consent. Focuses on design and layout for cross-media publishing. Examines the interface, functions, and integration of publishing software for graphic design and production. Explains how to prepare content for publication for print, Portable Document Format (PDF), and on the web. 3cr., 3hr. lect./lab

150 Introduction to GIS/GPS

Prereq: ICS 101 or BUSN 150, either with grade C or better; or consent. Recommended: Familiarity with computer databases. Introduces applications of geographic information systems (GIS) with a special emphasis on using ArcView GIS. Includes database construction and techniques for spatial data manipulation, analysis, and display. Teaches use of global positioning system (GPS.) Explores cross-disciplinary applications in the natural and social sciences. (Crosslisted as GIS 150.) 4cr., 6hr. lect./lab

151C Introduction to C Programming

Prereq: ICS 111 with grade C or better, or consent. Introduces students to C Programming Language and an Integrated Development Environment (IDE). Develops structured programs using problem solving, algorithm development, and programming concepts using a procedural language. 3cr., 3hr. lect./lab

161 Introduction to Computer Graphics

Prereq: ICS 101 (or concurrent) or BUSN 150, or consent.. Introduces computer graphics tools and concepts in digital image editing, illustration graphics, print and web design, and 2D and 3D animation. (Crosslisted as ART 161.) 3cr., 3hr. lect. (DA)

169 Introduction to Information Security

Prereq: ICS 101 with grade C or better, or consent. Provides the basic foundation to information security, including identifying threats, planning for business continuity,

and preparing for various security attacks. Focus will be given to threats to financial security such as attacks on banking and other related financial information. Special emphasis on ethics and legal issues that covers hacking and other cybersecurity techniques and tactics. 3cr., 3hr. lect.

171 Introduction to Computer Security

Prereq: ICS 101 or BUSN 150, or consent. Examines the essentials of computer security, including risk management, the use of encryption, activity monitoring, intrusion detection; and the creation and implementation of security policies and procedures to aid in security administration. 3cr., 3hr. lect.

184 Introduction to Networking

Prereq: ICS 101 with grade C or better, or consent. Provides the student with the knowledge and skills to manage, maintain, troubleshoot, install, operate and configure basic network infrastructure, as well as to describe networking technologies, basic design principles, and adhere to wiring standards and use testing tools. 3cr., 3hr. lect.

193v Computer Science Internship I

Prereq: ICS 111, and consent of both instructor and Co-op coordinator. Coreq: Enrollment in ECET program and one or more ECET or ETRO courses. Recommended: ETRO 101 and 105, and ENG 100. Reflects student interest area and availability of job stations. Offers opportunity to upgrade workplace employability. *Student, instructor, and employment supervisor jointly develop learning outcomes. Instructor and employment supervisor jointly evaluate student. (May be repeated for a maximum of 3 credits.)* 1-3cr., 75hrs. supervised work/cr.

200 Web Technology

Prereq: ICS 110 with grade C or better, or consent. Introduces web page authoring. Creates client-side web pages using web authoring language and style sheets. Uses graphical design elements, validation, browser capability, and accessibility. Uses scripting language to add dynamic elements to web pages,, client-side scripting, regular expressions, event handling, input validation, selection, repetition, and parameter passing. 3cr., 3hr. lect.

205 Photoshop and Illustrator

Prereq: ICS 101 or BUSN 150, or consent. Introduces the basic tools and features of digital image editing, photo retouching, and color correction of images. Focuses on the fundamental drawing techniques of illustration graphics including pen tool paths, objects, and type. (Crosslisted as ART 205.) 3 cr., 3hr. lect./lab (DA)

211 Introduction to Computer Science II

Prereq: ICS 111 with grade C or better, or consent. Recommended: MATH 135. Reinforces and strengthens problem-solving skills using more advanced features of programming languages and algorithms, such as recursion, pointers, and memory management. Emphasizes use of data structures, such as arrays, lists, stacks, and queues. *Meets ACM CS2 course standards.* 3cr., 3hr. lect./lab

214 Fundamentals of Design for Print & Web

Prereq: ICS 101 or BUSN 150, or consent. Introduces development principles related to graphic design terminology, tools and media, and layout and design concepts. Topics include integration of type, images, and other design elements, developing computer skills in industry standard computer programs, and study of design development pertaining to color theories, publications, and advertising. Projects will emphasize relating form to content through selection, creation and integration of typographic, digital imaging, illustrative, and design elements in print and web environments. (Crosslisted as ART 221.) 3cr., 3hr. lect./lab (DA)

251 Introduction to Unix/Linux

Prereq: ICS 101 with grade C or better, or consent. Introduces the Unix/Linux operating system with emphasis on the Red Hat Linux release. Covers the history and structure of Unix/Linux, basic functions, and fundamental commands. Explores advanced topics unique to Unix/Linux system administration. Stresses the ethics and responsibilities incumbent with Super User privileges. 4cr., 4hr. lect./lab

252 Unix/Linux System Administration

Prereq: ICS 251 with grade C or better, or consent. Continues exploration of the Unix/Linux operating system with an examination of

XX Insert course description for ICS141
 XX Insert course description for ICS 212

XXX - Insert course description for ICS 241