

# Applied Business and Information Technology (ABIT) BAS Program



## **ANNUAL** REPORT OF PROGRAM DATA **2021**



UNIVERSITY of HAWAI'I®  
**MAUI COLLEGE**

## **1. Program or Unit Description**

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### **Program Mission**

The Applied Business and Information Technology (ABIT) program prepares graduates to be successful entrepreneurs, technology professionals and knowledge workers in today's global economy and environment. The ABIT program is within the mission of the UH Maui College, offering a four-year degree that emphasizes high quality instruction and project-based learning.

### **Value of Degree**

The ABIT program provides a bachelor in applied science (BAS) degree to students who are either interested in pursuing higher education in graduate studies or would like to enter the workforce as a system analyst, business analyst or software engineer. Students have the opportunity to pursue their options based on their career and personal interests and goals.

### **Highlights of ABIT graduates**

Here are highlights from past graduates of the program -

- Sunny Cabello - Class of 2007, graduated from the first class of the ABIT program, pursued MBA after ABIT, currently Director of Teacher Pathways Grants at UH Maui College
- Lauren Kodani - Class of 2010, pursued MS in Ed Tech after ABIT, currently Instructional Designer and Lecturer at UH Maui College
- Shawna Pawangit (Martin) - Class of 2012, pursue MS in Human Resources Management, worked in HR dept., currently works at UH Maui College as Title IX/EEO/AA Coordinator
- Shawn Coad - Class of 2014, went on to obtain an IT analyst position at Four Seasons IT HQ in Denver, CO. After several years of work, currently IT Director at Four Seasons, Lanai
- Michelle Heller - Class of 2015, currently a business owner of Benjamin Moore Paint Store in Kahului, Maui. Went on to start her own business after graduation, in business for 6 years
- Jeremy Bac - Class of 2015, went on to pursue a masters degree in cybersecurity from the University of Washington, currently an Information Security Specialist at T-Mobile in WA
- Kuulei Alameida - Class of 2018, among the first graduates of the ABIT program from Molokai. Currently a HR Specialist and interested in pursuing a career in human resources
- Lorraine Osako - Class of 2019, went on to obtain employment as a Software Test Engineer at the Pacific Disaster Center in Kihei, HI.
- Kimo Goo - Class of 2020, went to work as a Single Store Sales Representative in Houston, TX at the TTI Group in Houston, a maker of contractor tool equipment

### **Certifications**

While pursuing the ABIT degree, students can take relevant ICS courses to pursue the following cybersecurity security certifications which are well recognized in the cybersecurity industry -

- Course ICS 184 - leads to CompTIA certification in Network +
- Course ICS 171 - leads to CompTIA certification in Security +
- Course ICS 281 - leads to EC-Council certification in Ethical Hacking
- Course ICS 282 - leads to EC-Council certification in Digital Forensics

### **Designation of CAE-CDE by NSA and DHS**

In April 2019, the ABIT BAS degree was designated by the National Science Agency (NSA) and Department of Homeland Security (DHS) as a Center of Academic Excellence (CAE) for Cyber Defense Education (CDE). This designation lasts 5 years through 2024 and provides the ABIT students with a network of cybersecurity institutions, opportunities for internships and employment in the cybersecurity industry, and opportunities to obtain certifications that are relevant and useful.

The CAE-CDE program has also provided the ABIT program and UHMC with the opportunity to pursue extramural grants from the National Science Foundation and the NSA. More information can be found at <http://maui.hawaii.edu/cybersecurity>. The most recent grants include the following -

- NSA Advanced Technology Education (ATE) Program - \$300K [Award No. 1700562](#)
- NSA GenCyber Award for Summer Teacher Workshops - \$150K, 2021-2023
- Currently applied for NSA ATE program grant for \$600K, decision in spring 2022
- Currently applied for NSA GenCyber grant for \$150K 2022-2023, decision in spring 2022

The NSA/DHS designation of CAE-CDE for the ABIT BAS program allows ABIT graduates to obtain a certificate from the NSA and DHS upon graduation and completion of all four upper division ICS courses in addition to ICS 169. Since May 2019, the following seven ABIT students have obtained the certificate. More students are expected to obtain this certification in May 2022.

- Kuulei Alameida - 2019
- Nels Romerdahl - 2019
- Laureen Osako - 2020
- Brian Leeper - 2020
- Kimo Goo - 2020
- Lauren Kiang - 2020
- Bjorn Lindqvist - 2020

### **Applied Research under ABIT**

The CAE-CDE designation has helped the ABIT program to pursue applied research projects in cybersecurity and computer science education within Maui County and the State of Hawaii. Recent projects include the following:

- Computer Science Education for public HS teachers in Hawaii - funded by NSF C-STEM grant [Award No. 1738824](#) through September 2021. Project provided opportunities for

ABIT students and UHMC faculty to conduct applied research in computer science education - training teachers with wide backgrounds to teach AP CSP in their classrooms

- Cybersecurity Workforce Development and Training in Hawaii - funded by NSF ATE grant [Award No. 1700562](#) through July 2021. Project provided opportunities for ABIT students to conduct paid internships with the PDC and with UHMC Program Coordinator. UHMC faculty were able to attend summer workshops for four years and learn about cybersecurity.

### Pathways for Graduate Studies

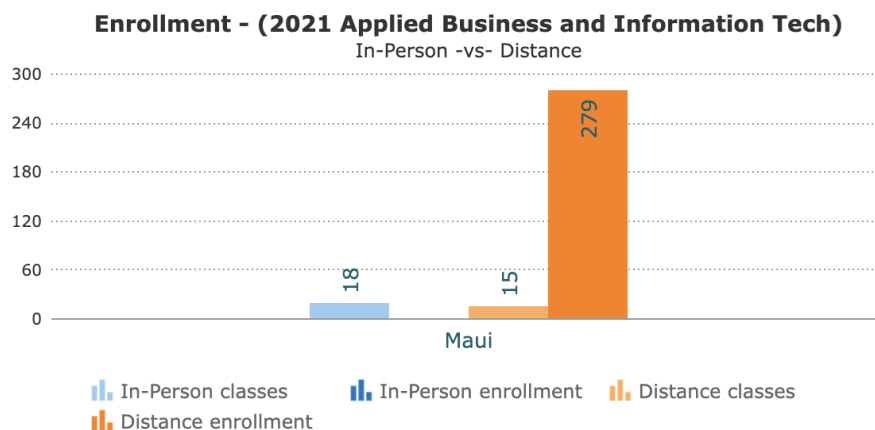
The ABIT degree provides a pathway for higher education in the following areas -

- Masters of Business Administration (MBA)
- Masters in Human Resources Management (MHRM)
- Masters in Educational Technology (MEdTech)
- Masters in Information Technology and Security (MSIT)
- Masters in Computer Science (MSCS)

### Target Student Population

The ABIT program offers both lower and upper-division courses to all students. The ABIT program serves a diverse student population, many of whom are first generation college students. The program also adjusts to traditional and non-traditional students, many of whom hold part-time jobs while completing their educational degree. The ABIT program is structured so that students can complete their entire degree over a four-year period. However, many students take longer to complete this degree based on personal and professional constraints and commitments.

The ABIT program is an established distance learning program which makes it available to distance learners outside Maui County. As such, the ABIT degree is now available to all students in Hawaii. As shown in the figure below, there are currently 15 distance classes and 279 distance learners.



The ABIT BAS program is a 4-year program and has articulated pathways based on Memorandum of Agreement (MoAs) with the following Associate Degree programs in UH community colleges -

- Kapiolani Community College – AS in Information Technology
- Leeward Community College – AS in Information and Computer Science
- Honolulu Community College – AS in Computer, Security and Networking Technology
- Hawaii Community College – AAS in Information Technology

### Closing Equity Gaps

The ABIT program caters to non-traditional students who come from a variety of backgrounds. The median age of the ABIT student is 26 years old and many students work full-time jobs. The proportion of Native Hawaiian students has grown over the past three years, as shown below.

Number of Majors		Native Hawaiians		
Campus	Program Name	2019	2020	2021
MAU	Applied Business and Information Tech	25	21	30

The ABIT program provides all of its upper division students with opportunities for online education. In addition, the ABIT program will introduce students to a new 8-week compressed modality starting spring 2022. This new compressed format will be completely asynchronous and on-demand courses that will help students who are employed in full-time jobs and cannot take time away to attend classes on campus or synchronous classes over Zoom. In addition, ABIT provides tuition at affordable rates, with the following rates for students -

- Lower Division ABIT courses - HI Residents - \$131 x 61 credits - \$7,991
- Upper Division ABIT courses - HI Residents - \$306 x 60 credits - \$18,360
- In addition, ABIT provides students from Pacific Island nations and Western Undergraduate Education (WUE) regions with tuition rates that are 1.5 times that offered to HI residents.

Finally, the ABIT program offers student support services that accommodates the learning needs of adult and non-traditional learners. With the successful placement of ABIT graduates with local and mainland employers, the ABIT program intends to close the diversity and equity gaps within students in the local community. The ABIT program comprises a majority of women students, with a significant representation of Native Hawaiian and students of Filipino descent. This increasing trend in student enrollment and growth indicates that the ABIT program is effective in targeting and mitigating issues and concerns with diversity, equity and inclusion.

## 2. Analysis of the Program/Unit

For the 2021 Review Year, the ABIT BAS program has an overall health status of **Cautionary**.

College: **University of Hawai'i Maui College**  
Program: **Applied Business and Information Tech**  
Status: Report Complete

### Program Quantitative Indicators

#### Overall Program Health: **Cautionary**

**Workforce Alignment:** Classification of Instructional Programs (CIP) -to- Standard Occupational Classification (SOC)

**Applied Business and Information Tech**  
CIP Code = **52.0799**

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11-9198 - Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other

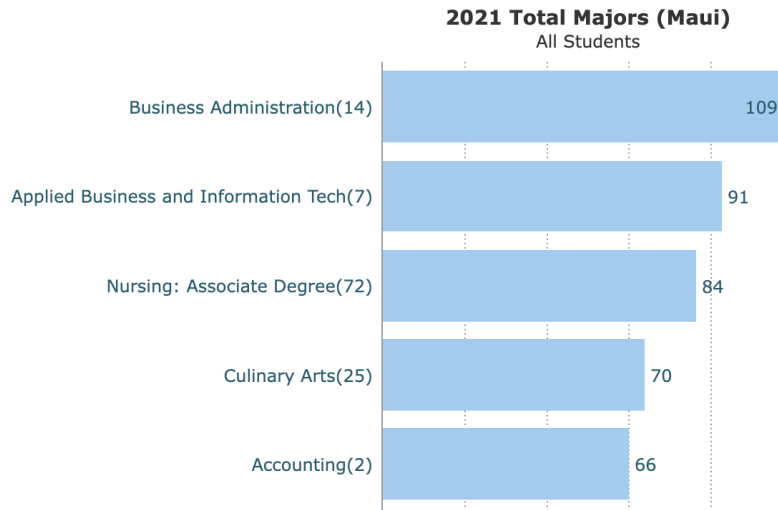
### Demand Indicators - Healthy

#	Demand Indicators	2018 - 19	2019 - 20	2020 - 21	Demand Health
1.	New & Replacement Positions (State)	349	313	317	<b>Healthy</b>
2.*	New & Replacement Positions (County Prorated)	30	29	28	
3.	Number of Majors	75	72	91	
3a.	Number of Majors Native Hawaiian	25	21	30	
3b.	Fall Full-Time	54%	53%	64%	
3c.	Fall Part-Time	46%	47%	36%	
3d.	Fall Part-Time who are Full-Time in System	5%	11%	0%	
3e.	Spring Full-Time	45%	47%	60%	
3f.	Spring Part-Time	55%	53%	40%	
3g.	Spring Part-Time who are Full-Time in System	7%	10%	5%	
4.	SSH Program Majors in Program Classes	312	447	501	
5.	SSH Non-Majors in Program Classes	381	369	456	
6.	SSH in All Program Classes	693	816	957	
7.	FTE Enrollment in Program Classes	23	27	32	
8.	Total Number of Classes Taught	16	17	18	

The above data indicates the following highlights and challenges -

- There is slight lowering of employment positions for the CIP Code 52.0799 from within the state and county. As can be seen from lines 1 and 2, the number of positions is flat or lower.
- In contrast to the open positions, the number of ABIT majors has grown during the pandemic, from 72 in 2019-20 to 91 in 2020-21. This has been accompanied by an increase in the SSH (or student hours) taken by both ABIT majors and non-majors.
- This increase in enrollment and SSH indicates that the ABIT program is growing in popularity across the state and more students are availing of the opportunity to transfer

It should be noted that ABIT is the second most popular major at UHMC for AY 2021-22.



### Efficiency Indicators - Progressing

#	Efficiency Indicators	2018 - 19	2019 - 20	2020 - 21	Efficiency Health
9.	Average Class Size	14	16	18	<b>Progressing</b>
10.*	Fill Rate	57.6%	64.5%	72.8%	
11.	FTE BOR Appointed Faculty	2	2	2	
12.*	Majors to FTE BOR Appointed Faculty	38	36	46	
13.	Majors to Analytic FTE Faculty	38	36	46	
13a.	Analytic FTE Faculty	2	2	2	
14.	Overall Program Expenditures	\$150,433	\$145,478	\$145,588	
14a.	General Funded Budget Allocation	\$140,901	\$138,152	\$144,294	
14b.	Special/Federal Budget Allocation	0	0	0	
14c.	Tuition and Fees	\$9,532	\$7,326	\$1,294	
15.	Cost per SSH	\$217	\$178	\$152	
16.	Number of Low-Enrolled (<10) Classes	6	3	2	

The ABIT program lost one FT faculty in early August 2020, so the above numbers are inaccurate based on the operations for AY 2020-21. Based on 1 Analytic FTE Faculty, the revised metrics are:

- Majors to FTE BOR Appointed Faculty - 2020-21: 91
- Majors to Analytic FTE Faculty - 2020-21: 91
- Overall Program General Funded Budget Allocation has decreased from \$144,294 to around \$100,000. This includes salaries for 1 FTE Faculty and additional lecturer costs in AY20-21
- Other indicators of efficiency include a sharp decrease in tuition and fees program expenditures (ABIT operating budget) to \$1,294 in 2020-21 from previous years. Also, the cost per SSH has decreased to \$152 in 2020-21 from previous years, indicating that the ABIT program is delivering its courses in a more efficient and cheaper manner.
- Finally, with the decrease in low enrolled courses in 2020-21 to 2 courses, which is a sharp decline from previous years, ABIT has become more efficient in filling its courses.
- Overall, with 1 FTE Faculty instead of 2 as noted above, ABIT is **Healthy in Efficiency**.

## Effectiveness Indicators - Progressing

#	Effectiveness Indicators	2018 - 19	2019 - 20	2020 - 21	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	86%	80%	82%	<b>Progressing</b>
18.	Withdrawals (Grade = W)	11	22	19	
19.*	Persistence Fall to Spring	72%	76%	69%	
19a.	Persistence Fall to Fall	47%	53%	52%	
20.*	Unduplicated Degrees/Certificates Awarded	8	13	9	
20a.	Degrees Awarded	8	13	9	
20b.	Certificates of Achievement Awarded	0	0	0	
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	0	0	0	
21.	External Licensing Exams Passed <sup>1</sup>				
22.	Transfers to UH 4-yr	24	28	44	
22a.	Transfers with credential from program	11	16	14	
22b.	Transfers without credential from program	13	12	30	

<sup>1</sup> Campus to include in program analysis if applicable.

The Effectiveness indicators above imply that the ABIT program is in a “progressing” status. This implies that there are some metrics that need to be improved. Some key notes are as follows:

- The Persistence from Fall to Spring seems to have declined in 2020-21 to 52% from previous years. This implies that students may not be returning to the ABIT program after the Fall Semester. It should be noted that Fall 2020 was an unusual year with a spike in the Covid pandemic in Hawaii. It is possible that students were impacted by the Covid pandemic and decided not to return to the ABIT program in the Spring of 2021.
- The transfers to the UH 4-yr, without credential from the program, increased sharply to 30 in the AY 2020-21. This implies that many students left ABIT to transfer to other UH programs. This issue can be addressed by increasing counseling and support to students.

As shown in the figure below, ABIT has an increase in the number of classes offered in a distance modality. The Fill Rate for distance classes remains high and this is an increasing trend for ABIT.

#	Distance Indicators	2018 - 19	2019 - 20	2020 - 21	
23.	Number of Distance Education Classes Taught	9	6	15	
24.	Enrollments Distance Education Classes	164	106	279	
25.	Fill Rate	67%	61%	73%	
26.	Successful Completion (Equivalent C or Higher)	85%	76%	82%	
27.	Withdrawals (Grade = W)	9	10	15	
28.	Persistence (Fall to Spring Not Limited to Distance Education)	75%	75%	78%	

The ABIT program was approved by the WSCUC accreditation committee as a distance program in 2018 and can reach the entire state of HI. ABIT employs hybrid courses, where there is one contact hour of live synchronous classes to distance learners and one contact hour for asynchronous online learning. This hybrid mode of instruction is delivered via distance learning tools such as Zoom, directly to a student’s laptop or to a learning center within the UH system. All upper division ABIT courses are now offered to distance students, or to students who are not able to commute in person

to the Kahului campus. This has allowed the ABIT program to be delivered to students outside Maui County, including students from Oahu. Given that the ABIT program is now offered statewide, there are students from Oahu who are currently enrolled in the ABIT program. Many of these students are graduates of the AS in ITS program from Kapiolani Community College. These students take courses from Oahu and enroll in ABIT classes via distance education. However, the ABIT program provides counseling and support to these students outside Maui County.

The ABIT counselor keeps in regular contact with students outside Maui County and the ABIT Program Coordinator makes regular trips to Kapiolani CC and Molokai Education Center to confer and coordinate with the students. With the onset of the Covid-19 pandemic in March 2020, all courses in the ABIT program have transitioned to an online modality. This has allowed distance students to participate on equal terms with students from Kahului. Currently, ABIT faculty adopt a mix of synchronous and asynchronous online modality to teach students from all over the state.

The ABIT program maintains a baseline of an average of 10 graduates over the past three years.

#	Performance Indicators	2018 - 19	2019 - 20	2020 - 21
35.	Number of Degrees and Certificates	8	13	9
36.	Number of Degrees and Certificates Native Hawaiian	2	3	4

Many ABIT graduates seek employment in small businesses in the hospitality or technology industry. Recent graduates from the ABIT program have received employment in the local high technology industry on Maui, specifically at the Pacific Disaster Center, based out of Kihei, Maui. Additional details about graduate highlights can be found at the UHMC ABIT website at <http://maui.hawaii.edu/abit>.

### 3. Program Student Learning Outcomes or Unit/Service Outcomes

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*a) List of the Program Student Learning Outcomes (PLOs)*

In addition to demonstrating college-wide learning outcomes in creativity, writing, critical thinking, oral communication, quantitative reasoning, and information literacy, graduates of the Bachelor of Applied Science (BAS) degree in Applied Business and Information Technology (ABIT) program, will be able to do the following:

1. Develop effective business plans and strategies using essential business functions such as marketing, management, accounting, and statistics.
2. Design prototypes using current business technology for e-commerce, web programming, databases, systems analysis, and project management.
3. Create minimum viable products or services for a feasible business venture through entrepreneurship and technology skills.
4. Demonstrate business ethics, value, and integrity through teamwork and leadership.

*b) Program or Unit/Service Outcomes that have been assessed in the year of this Annual Review.*

The above PLOs are assessed by ABIT upper division courses that develop the relevant knowledge, skills and competencies among the students.

Mandatory ABIT **business courses** that develop some/all of the above PLOs include:

- Accounting (ACC 300) – Intermediate Financial Accounting I
- Management (MGT 310) – Principles of Management
- Marketing (MKT 300) – Principles of Marketing
- Entrepreneurship (BUS 320) – Entrepreneurship
- Business Analytics (BUS 310) – Statistical Analysis for Business Decisions

Mandatory ABIT **technology courses** that develop some/all of the above PLOs include:

- E-Commerce (ICS 320) – Introduction to Info Systems and E-Commerce
- Databases (ICS 360) – Database Design and Development
- Web Development (ICS 385) – Web Development and Administration
- Project Management (ICS 418) – Systems Analysis and Design

Mandatory **Capstone courses** that demonstrate the above PLOs at a graduation-ready level.

- Capstone I (BUS 495) – Lean Launchpad, Business Canvas and Minimum Viable Product

- Capstone II (BUS 496) – Extend MVP with Customer Feedback, Prepare for Launch

The major assessment activity that measures all the ABIT PLOs is the Capstone Project I or BUS 495. This project is assessed by the ABIT Advisory Board, community members and the ABIT faculty. The assessment activity for the ABIT Capstone project is as follows:

1. In Week 5 or so of Capstone I, students make pitch of the project to the Advisory Board
2. In Week 15 of Capstone I, students demonstrate their project to the community
3. Assessment Rubrics, that cover all PLOs, are used in Week 5 and Week 15
4. Students are also assessed on soft skills such as communication and presentation skills
5. Students receive ongoing feedback from instructor and mentoring from Advisory Board

c) *Assessment Results.*

In the Fall of 2020, the ABIT program conducted a program assessment report of all the ABIT program PLOs and the CASLO for Critical Thinking. The Portfolio Model #3 was used to assess the results and the deliverables from the ABIT Capstone I or BUS 495 were used as artifacts. The ABIT advisory board reviewed the deliverables and provided feedback on the PLOs and CASLO.

Details can be found [here](#). The assessment process for ABIT Capstone I involves the following:

1. Students complete a project that includes all 4 ABIT PLOs
2. The Fall 2020 project also covered CASLO Critical Thinking
3. ABIT Advisory Board mentored and guided all three projects
4. Students demonstrated their exit skills by doing the project
5. ABIT Advisory Board and students were provided with rubric
6. Using rubric, all Capstone project assessments were recorded
7. ABIT Advisory Board filled out a survey on PLOs and CASLO
8. Responses to the survey was collected and analyzed

Overall, the ABIT Advisory Board had a favorable opinion and assessment of the three Capstone projects delivered in Fall 2020. Summary reports of the PLOs and CASLO assessments are [here](#).

Based on the feedback from the ABIT Advisory Board, it appears that all students do not have the prerequisite to perform well under PLO1 and PLO2 of the ABIT program. This may be due to the fact that currently, the only prerequisite for the ABIT Capstone I course is BUS 320 or Entrepreneurship. As a result, many students do not have the prerequisite courses in Marketing or Information Technology to perform well in the ABIT Capstone project. As a result of these findings, the ABIT program map is under revision for AY 2022-23, where the following five courses will be the prerequisites for the ABIT Capstone 1 - Accounting 300, English 316, Business 320 (Entrepreneurship), ICS 360 (Databases) and ICS 385 (Web Development and Admin).

## 4. Action Plan

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With the onset of the Covid-19 pandemic in March 2020, there is a greater emphasis on online education. Hence, the ICS courses in ABIT have been programmed for online labs and exercises. These labs have reinforced the students to learn new technologies that revolve around cloud technologies and emerging technologies such as data science. The ABIT program continues to evolve with the changing times and economy. As future technologies emerge, the ABIT program changes to adopt new course topics and curriculum. Based on the economic impact of the Covid-19 pandemic, the future economy of Hawaii may be more diversified and rely on technology jobs. The ABIT program is well positioned to train current students in jobs that will be prevalent in Hawaii in the near future. Many jobs on the mainland are also open to Hawaii residents due to the “remote first” policy of mainland employers. These trends are highlighted in the jobs report below ([source](#)).

### FASTEST-GROWING JOBS FOR THE NEXT DECADE

According to the Bureau of Labor Statistics, the coronavirus pandemic has increased the demand for STEM jobs and remote positions that depend on math and science skills. Here the top 10 fastest-growing jobs for the next decade.

Job	Projected Growth Rate	Median Pay
Statisticians	35.40%	\$92,270
Information security analysts	33.30%	\$103,590
Data scientists and mathematical science occupations	31.40%	\$98,230
Epidemiologists	29.60%	\$74,560
Operations research analysts	24.60%	\$86,200
Actuaries	24.50%	\$111,030
Software developers and software quality assurance analysts, testers	22.20%	\$110,140
Computer and information research scientists	21.90%	\$126,830
Medical scientists (except epidemiologists)	16.90%	\$91,510
Forensic science technicians	15.60%	\$60,590

**8-Week Online Program:** The ABIT program will start a new 8-week online program for working professionals during the spring of 2022. This program will allow students to take two 8-week courses at a time in spring/fall semester, plus five elective courses (these Level 100-400 courses can be of any length). This program is 100% online and asynchronous, which fits the schedules of working students. Courses will start in Spring 2022 with a graduation date in Fall 2023. The following schedule will be applied for students interested in applying for the 8-week program. Students need to have obtained an associate degree before applying as a transfer student to ABIT.

**Upper Division Courses for 8-Week Online Program.** Average Class Size - 15 per course

<i><b>Spring 2022 (8+8 weeks)</b></i>	<i><b>Summer 2022</b></i>	<i><b>Fall 2022 (8+8 weeks)</b></i>
MKT 300 -> MGT 310 ENG 316 -> ICS 320 <b>Resources Needed - 3 lecturers, 1 FT</b>	Elective 1 and Elective 2 (100-400 level)	ICS 360 -> ICS 385 ACC 300 -> BUS 320 <b>Resources Needed - 3 lecturers, 1 FT</b>
<i><b>Spring 2023 (8+8 weeks)</b></i>	<i><b>Summer 2023</b></i>	<i><b>Fall 2023 (8+8 weeks)</b></i>
BUS 310 -> HUM 400 ICS 418 -> Elective 5 (100-400) <b>Resources Needed - 3 lecturers, 1 FT</b>	Elective 3 and Elective 4 (100-400 level)	BUS 495 -> BUS 496 COM 459 or 353 -> PHIL 323 <b>Resources Needed - 3 lecturers, 1 FT</b>

**16-Week Program** - The regular 16-week program consists of a combination of asynchronous and synchronous learning that works for students who prefer to work on extended timelines. The 16-week program typically starts in the Fall Semester and continues through the Spring Semester.

**Upper Division Courses for 16-Week Online Program.** Average Class Size - 18 per course

<i><b>Spring 2022 and 2023 (16 weeks)</b></i>	<i><b>Fall 2022 and 2023 (16 weeks)</b></i>
BUS 320 - FT ABIT Faculty 1 ICS 360 - FT ABIT Faculty 1 ICS 385 - FT ABIT Faculty 1 ENG 316 - FT English Faculty BUS 496 - Lecturer in SP 22, FT ABIT 2 SP 23 COM 459 - FT GenEd Faculty PHIL 323 - FT GenEd Faculty Elective 1, 2 and 3 (100-400 level) - no ABIT  <b>Resources Needed - 4-5 FT + 1 lecturer SP22</b> Assumption - Hire 1 FT ABIT Faculty in Fall 2022, available for Spring 2023 but not SP22	ACC 300 - FT ABIT Faculty 2 ICS 320 - FT ABIT Faculty 1 MGT 310 - FT ABIT Faculty 2 MKT 300 - FT ABIT Faculty 2 BUS 310 - FT Math Faculty BUS 495 - FT ABIT Faculty 1 ICS 418 - FT ABIT Faculty 1 HUM 400 - FT GenEd Faculty Elective 4 and 5 (100-400 level) - no ABIT  <b>Resources Needed - 4 FT</b> Assumption - Hire 1 FT ABIT Faculty in Fall 2022

**Resources** - ABIT intends to minimize its cost of operations by only hiring lecturers when they can be paid for by extramural funds. This reduces the burden on UHMC for lecturer costs. Also, ABIT FT BoR Faculty will teach all the essential courses for ABIT, as outlined in the program map. Shared faculty from other programs, such as ACC, BUS, PHIL and ENG, will continue to teach the GenEd courses. Overall, ABIT intends to remain a profitable program in AY22-23 and beyond. Given the loss of 1 FT ABIT faculty in August 2021, it is expected that a replacement will be hired starting August 2022 or Fall Semester 2022. The above schedule assumes 2 FT faculty in Fall 2022.

**Curricular** - ABIT has updated all its upper division courses in the Kuali system in Fall 2020. ABIT has also prepared course updates to its program map and all curriculum changes are under review by the curriculum committee. The following curriculum changes have been proposed -

- Upper division transfer courses - ICS 110/111, ENG 2xx, BUS 120, ACC 202, MATH 115
- Prerequisite courses for ICS 320 - changed to ICS 110 or ICS 111
- Prerequisite courses for MGT 310 and MKT 300 - changed to BUS 120
- Prerequisite courses for ABIT Capstone - ACC 300, BUS 320, ICS 360/385 and ENG 316
- 5 year course updates were made for all ABIT courses in the Kuali system in Fall 2020

**Agreements with UH CCs** - ABIT has completed a MoA with Hawaii CC where their AS in ITS graduates would be eligible to pursue upper division courses from Oahu and complete the BAS in ABIT degree. In addition to Hawaii CC, the ABIT program also completed MoAs with Kapiolani CC, Honolulu CC and Leeward CC. These MoAs allow the ABIT BAS program to be an option for graduates from all the large community colleges within the UHCC system. The publicity gained by these MoAs within the community colleges has contributed to the increased enrollment in ABIT.

**Applied Research** - ABIT faculty and program coordinator, Dr. Debasis Bhattacharya, is the recipient of several NSF grants that total more than \$2M since 2012. Until September 2020, Dr. Bhattacharya was the Principal Investigator (PI) of two statewide NSF grants. Currently, Dr. Bhattacharya has been awarded a grant by the NSA GenCyber program to host summer workshops for HI DoE teachers in cybersecurity. Dr. Bhattacharya has also applied for an NSF ATE grant for \$600K that will facilitate the growth of the cybersecurity program within UHMC and Hawaii.

**Center for Academic Excellence (CAE) in Cyber Defense Education (CDE)** - In April 2019, the ABIT BAS program was designated a CAE-CDE by the National Security Agency (NSA) and Department of Homeland Security (DHS). This designation was granted primarily due to the focus on cybersecurity education within several ABIT courses. Students who graduate from the ABIT program are entitled to receive a special CAE CDE certificate. This designation will help ABIT to attract students who are interested in pursuing a cyber career. This designation as a CAE also allows the ABIT program and UHMC to be eligible for funding from a variety of government sources. As noted in Section 1 several ABIT students have received the CAE CDE certificate since May 2019.

## 5. Resource Implications

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None required. The ABIT program is self-sufficient in personnel, resources and equipment for AY21-22.

The cost of the ABIT program is shown below and is largely based on the salaries of one FT faculty. There is a small operating budget for the ABIT program that covers marketing, supplies and recruitment costs. The ABIT program is profitable and makes significantly more revenues, primarily based on the SSH from upper division revenues, than the total cost to run the program. With cost per SSH going down, and the SSH from students going up, the ABIT program is profitable and sustainable over the next few years.

The following figures indicate the costs for the program with 2 FTE faculty, which was the situation prior to August 2021. With the utilization of 1 FTE faculty, the program is even more efficient.

14.	Overall Program Expenditures	\$150,433	\$145,478	\$145,588
14a.	General Funded Budget Allocation	\$140,901	\$138,152	\$144,294
14b.	Special/Federal Budget Allocation	0	0	0
14c.	Tuition and Fees	\$9,532	\$7,326	\$1,294
15.	Cost per SSH	\$217	\$178	\$152
16.	Number of Low-Enrolled (<10) Classes	6	3	2

The following table highlights the increase in revenues, per SSH, from ABIT students.

4.	SSH Program Majors in Program Classes	312	447	501
5.	SSH Non-Majors in Program Classes	381	369	456
6.	SSH in All Program Classes	693	816	957
7.	FTE Enrollment in Program Classes	23	27	32
8.	Total Number of Classes Taught	16	17	18

It should be noted that about 50% of ABIT students are upper division students who pay \$306 per credit hour. The remaining 50% of students are lower division students who pay \$131 per credit hour. Using these numbers, an estimate of the profit per SSH is derived below.

- Revenues for upper division SSH - 50% of 957 or 478 x \$306 = \$146,268
- Revenues for lower division SSH - 478 x \$131 = \$62,618 for total of \$208,886
- Cost per SSH is \$152, so cost for 957 SSH is \$145,464
- **Profit for all SSH is estimated to be at least \$63,422**
- Assuming the cost per SSH is based on 2 FTE costs, the actual profit for SSH is higher

 **I am NOT requesting additional resources for my program/unit.**