

## Form 1: Prioritized List of One-Time Budget Requests 2016-17

**Division: Academic Affairs**

**Department/Unit: College of Arts & Sciences**

Instructions: List all one-time budget requests in priority order. Complete and attach a *Justification: One-Time Budget Request* (Form 2) for each item listed.

Priority Number	Budget Request	Cost
1	Purchase a new 12-passenger van (1 of 3)	\$ 40,000
2	Replacement of laboratory equipment for gateway laboratory physics courses such as PHYS 130/230 and 131/231 (CHPH)	30,000
3	Anatomical Human Teaching Skeletons (ANSO)	20,316
4	Rescale equipment supplies to larger labs and numbers of majors (GNR)	20,000
5	EdTPA Equipment for all Teacher Ed Programs	10,600
6	Renewal of lecturer position T10025 for one year (MCS)	43,592
7	MOPEC Laboratory Tables (4) and Stools (8) (ANSO)	9,132
8	Audio over IP Integrated Studio System for WWCU FM (COMM)	86,150
9	Replacement of laboratory equipment and modernization of 200-level gateway chemistry laboratory courses such as CHEM 232, 241 & 242	38,100
10	Purchase a new 12-passenger van (2 of 3)	40,000
11	Investment to establish a Core DNA Sequencing Institute at WCU	83,000
12	Cell and Molecular Biology Teaching Equipment, Phage Hunters (joint request: BIOL, CHPH)	45,000
13	One-year fixed term Instructor (CJ)	70,000
14	Upgrade computers in Coulter 105 with Oxygen XML Editor (ENGL)	1,141
15	Purchase a new 12-passenger van (3 of 3)	40,000
16	Replacement of laboratory equipment for 100-level gateway laboratory	20,900
17	Video editing workstations for broadcasting, journalism, public relations	25,000
18	EXO1 Multi-parameter Sondes (2 at \$12,500 each) (GNR)	25,000
19	Student computer laboratory (ST 436) task chairs (MCS)	8,550
20	Digital X-Ray Cabinet System (ANSO)	151,827
21	Recording Equipment for Field-Based and Lab Classes (ANSO)	1,950
22	JEOL 400MHz NMR spectrometer (CHPH)	150,000
23	Illumina FGx massively-parallel DNA sequencing system (FS)	135,081
24	Herbarium Cabinets (BIOL)	40,000
25	Stipend to develop applied and public history capstone (HIST)	3,000
26	Equipment to support internships in applied and public history (HIST)	1,500
27	Live Cell Incubator Chamber for Fluorescence Microscope (BIOL)	16,000
28	FlashForge 3D Printer (ANSO)	1,439
29	Television Field Cameras (3) (COMM)	18,000
30	Equipment to showcase undergraduate research (HIST)	5,000
31	Computational time with Amazon Web Services (CHPH)	10,000
32	Electronic signage (ENGL)	5,000
33	Picarro isotopic water analyzer (GNR)	96,000
<b>TOTAL</b>		<b>\$ 1,291,278</b>

## Form 2: Justification: One-Time Budget Request 2016-17

Division: Academic Affairs

Department/Unit: Biology and GNR

Instructions: One page per item listed on Form 1.

Each justification **MUST** link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 *Vision: Focusing our Future*. Justification narrative below must:

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
1	Purchase a new 12-passenger van (1 of 3)	1.1.1, 1.3.2, 1.3.3, 1.4.3, 1.6.2, 2.1.5, 4.4.1, 4.4.2, 5.1.3	\$40,000
<b>Brief Justification:</b>			
<p>Our department is highly field-oriented, which promotes engaged learning by our students and the students that we serve in allied disciplines including in NRM and environmental science; the two vehicles that we currently own are <b>safety hazards</b> and 20 years old, and <b>one is no longer operable and has been surplus</b>; two new vehicles would allow us to continue high quality lab and field trips throughout the region and beyond, including along narrow and steep sites where the repurposed Cat-Tran vehicles wouldn't be able to go; vehicles are also a recruiting (and retention) tool for students and faculty; we would like to bring back more travel and summer courses such as those we offered in Yellowstone National Park and the desert southwest and such vehicles would aid in this mission; such vehicles would also allow us to bring gear and faculty/students to research sites, which are often spur-of-the-moment trips based on student research projects and weather constraints. Access to vans also provides our students with opportunities for professional development (e.g., travel to conferences, travel to research labs at other campuses or institutions) and these are invaluable experience for professional development. Renting vans from an agency such as Enterprise can only partially solve our transportation needs - without reliable and affordable vehicles on site, we cannot complete our mission to our students. The Biology programs received Program Priority scores of "2". The summary statement about our program stated: "The Task Force praised this program's overall quality and productivity, particularly in the critical STEM disciplines". Our program not only supports our own majors, but also plays a critical role in training students from Program Priority "1" disciplines such as Environmental Science and Natural Resource Conservation and Management, in which these vans would be shared along with Geosciences. From GNR: This is a joint request with the Biology Department, which shares similar needs with similar justifications. Frequent, easy, and safe travel to get students taking GNR courses on course-related field trips is essential and valued component of the educational experience in our disciplines, which are largely 'field-based'. This is true especially for NRCM, Geology, and ES majors, where virtually all courses have some 'field' component. NRCM and ES were categorized as 'one' (worthy of investment) in the program prioritization process. However, most off campus trips travel to rural areas with narrow roads (sometimes gravel) where a passenger van is needed. This is also true for access to the on-campus Western Carolina Hydrologic Research Station, most of which is on the West Campus just 1-3 miles from campus; at present, we have 6 GNR faculty with active research involving students and classes at this station. Last, we need vehicles better equipped to transport field equipment to study sites and pick up equipment/materials at local stores. GNR had to surplus its departmental van this recently because it was too old and unsafe to drive.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department/Unit: Chemistry & Physics**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
2	Replacement of laboratory equipment for gateway laboratory physics courses such as PHYS 130/230 and 131/231	1.2.4, 1.6.7	\$30,000
<b>Brief Justification:</b>			
<p>This request focuses on improving the learning experience of our students in gateway (100- &amp; 200-level) physics courses. The requested fund will go towards replacing outdated and broken equipment for the laboratories as well as purchasing new demonstrations for the lectures. The visual and hands-on experience these equipment provide are crucial in understanding physics concepts at this level. Each semester, more than 370 students and 390 students are enrolled in these gateway physics labs and lectures respectively, with the majority of them coming from Engineering, Nursing, Biology, and Forensic Science programs. Students from these STEM-related disciplines will benefit greatly by having an improved physics education as the foundation for their chosen field of study.</p> <p>This request aligns with the 2020 Strategic Plan with respect to initiative 1.6.7, which calls for WCU to increase the freshmen to sophomore retention rate to 80%. In lectures, we would use this fund to purchase physics demonstrations. Students understand physics concepts significantly better when they can see the actual phenomenon happening in front of their eyes. In the laboratories, students often have to spend extra effort to troubleshoot malfunctioning equipment. We need to update these equipment so that students can focus on observing what is happening and think about the physics behind it. Both of these improvements are crucial in promoting students' understanding of physics concepts and their retention rate in these courses.</p> <p>Additionally, by replacing outdated and broken laboratory equipment, students from multiple groups would not have to share an instrument. This will provide individual students a better access to the equipment so that they can actually manipulate apparatus with their own hands instead of just watching from the sideline. Students would be able to participate and communicate ideas with their group members to solve the complex problem at hand. As such, this request aligns with the 2020 Strategic Plan with respect to initiative 1.2.4, which states that each program should instill the core general education priorities of WCU.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Anthropology & Sociology**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: *Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
3	Anatomical Human Teaching Skeletons	1.1.7, 1.6.3, 1.2.3, 1.3.2, 5.5.5, 6.3.7	\$20,316

**Brief Justification:**

(Disarticulated adult human skeleton \$4,029.00 (x4) = \$16,116.00; Disarticulated adult human skull \$2,100.00 (x2) = \$4,200.00)

Currently, WCU's Forensic Anthropology Program has eight adult human anatomical skeletons and five disarticulated adult human crania. These anatomical teaching skeletons are housed apart from the research-based donated human remains and are used exclusively for hands-on teaching. In our three FANT core-courses alone (ANTH 251, ANTH 264 and ANTH 400), these remains are handled by students in multiple classrooms for more than 100 hours per semester. Fragile human remains need maintenance and replacement from this type of usage.

The FANT Program prides itself as being the only undergraduate program in forensic anthropology, as well as one of the top programs in human skeletal biology in the nation. We are able to achieve these honors by instructing our students using real human remains and operating following the best practice guidelines for education and training in forensic anthropology, put forward by the Scientific Working Group for Forensic Anthropology (SWGAnth 2013). The usage of real human remains for education in training in forensic anthropology (and human skeletal biology in general) is paramount. Using even high quality plastic replicas is not the same as human bone and would be considered substandard for forensic anthropology education by any professional in the discipline.

**References:**

Scientific Working Group for Forensic Anthropology. 2013. Education and Training document. Accessed 10/20/15.  
<http://swganth.startlogic.com/Education%20and%20Training%20Rev0.pdf>

This request supports the following 2020 Vision initiatives:

- \* Initiative 1.1.7 - Increase the total number of WCU graduates by 25% by 2020 to meet the regional need for an educated work force: Using anatomical human skeletons is key to student engagement, experiential learning, and all of the WCU Forensic Anthropology Program's educational objectives.
- \* Initiative 1.6.3 - Expand efforts to recruit students in programs associated with the curricular focus areas: Student recruitment and retention is based on the curricular opportunities offered to them by their program of study, using complete, undamaged anatomical skeletons is an excellent example of why students would want to become part of the Forensic Anthropology Program at WCU.
- \* Initiative 1.2.3 - Incorporate writing and research into all levels of the curricula: The anatomical skeletons are used to assignments on a weekly basis, often requiring writing and critical thinking, resulting in mock case reports.
- \* Initiative 1.3.2 - Incorporate expectations for experiential and applied learning opportunities, including undergraduate research opportunities, in the curricular review process: The Forensic Anthropology Program at WCU is based on hands-on, applied experiential learning, the basis of which is the usage of real human skeletal material.
- \* Initiative 5.5.5 - Systematically assess and upgrade technologies in support of campus safety objectives: Maintaining complete and

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

Division: Academic Affairs

Department / Unit: Geosciences & Natural Resources

Instructions: One page per item listed on Form 1.

Each justification **MUST** link to at least one specific strategic initiative from the WCU Strategic Plan, 2020

*Vision: Focusing our Future*. Justification narrative below must:

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
4	Rescale equipment supplies to larger labs and numbers of majors	1.3.2, 2.1.1	\$20,000
<b>Brief Justification:</b>			
<p>We need to rescale our equipment stock to our larger number of majors and lab sizes. Since 2008, the number of majors in Natural Resources, Environmental Science, and Geology have increased over 70 percent with no increase in full-time faculty. As a consequence, the number of students taking labs and the number of students per lab section has increased. These increases have caused bottlenecks in laboratory uses and field (outside) uses. This request will increase the numbers of pieces of equipment for items such as balances, pH meters, conductivity meters, environmental sensors, glassware and sample bottles, Groundwater simulation tanks models, soil augers, software licenses, rock thin sections, electronic clinometers, etc. None of this equipment requested is new to the department.</p> <p>The program prioritization process clearly recognized the value and high quality of these three programs and rated both the NRCM and ES programs as category 1. Excerpts from the final report are below.            NRCM (Priority Rank-1): The Task Force believes this program is a strong fit for WCU, shows great potential, and is worthy of future investment.            ES (Priority Rank-1): The Task Force considers this to be a program of great potential and worthy of future investment.            GEOL (Priority Rank-2): The Task Force noted the program's great potential for growth and distinction.</p>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit:**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

**1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**

**2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
5	EdTPA Equipment for all Teacher Ed Programs	1.1.2 (2)	\$10,600
<b>Brief Justification:</b>			
<p>This request is to facilitate the growth and improvement of the college's Teacher Ed. Programs by providing prospective teacher training that includes technologies available in high school classrooms, and by enhancing our ability to prepare students to complete the video portion of the edTPA assessment. Purchase would include Smart Boards or equivalent and installation, and Sony Handycams with 32 GB memory cards and tripods.</p> <p>This request supports the following 2020 Plan initiative: Initiative 1.1.2(2): "Fulfill WCU's historic and continuing commitment to be the regional leader in teacher education."</p> <p>The need for such information technology is also bolstered by our new state budget, which mandates content and pedagogy requirements for all educator preparation programs (115C-296.10.c.): "Demonstration of competencies in using digital and other instructional technologies to provide high-quality, integrated digital teaching and learning to all students."</p> <p>Department of History Program Prioritization Category 2.</p>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-2017**

**Division: Academic Affairs**

**Department/Unit: Mathematics and Computer Science**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future.* Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
6	Renewal of lecturer position T10025 for one year	1.2.1, 4.1.1, 4.1.3	\$43,592

**Brief Justification:**

\$31000 base pay plus fringe. From AY 2009-2010 to AY 2013-2014, total SCH growth in MATH courses has been about 9.9%, with the preponderance of this in lower division courses. We have had no net change in Faculty FTEs AND a net loss of 3-8 sections per year of GTA teaching starting in AY 2015-2016 (this is after subtracting the number of sections of graduate-only courses) due to the elimination of all masters programs (and 11 graduate assistantships) during program prioritization. We are increasingly hard pressed to address liberal studies mathematics and, in addition, we must respond to growth in health sciences and STEM, particularly in the Kimmel School programs. For this academic year, we have a one-year lecturer teaching 8 sections to relieve pressure as well as four part-time adjunct faculty teaching a total of 12 sections. It is clearly undesirable to continue with so much use of adjuncts. The BS MATH 2015-2016 PDP recommends a new faculty line to support this instructional demand. This request addresses Initiative 1.2.1 to hire faculty who will contribute to our core educational value and its academic mission and Initiatives 4.1.1 and 4.1.3 to recruit and retain high-performing employees with competitive salaries. In the 2012-2013 program prioritization, undergraduate MATH was category 2. Graduate MATH was category 3, and thusly eliminated.

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Anthropology & Sociology**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: Focusing our Future. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
7	MOPEC Laboratory Tables (4) and Stools (8)	1.1.7, 1.6.3, 1.2.3, 1.3.2, 5.5.5, 6.3.7	\$9,132
<b>Brief Justification:</b>			
<p>Cost = \$9,132.00 (\$1,725.00 x 4 lab tables = \$6,900.00 ; \$279.00 x 8 lab stools = \$2,232.00)</p> <p>Currently at the Western Carolina Human Identification Laboratory (WCHIL) in McKee G15, there are no dedicated laboratory tables, except a single non-mobile autopsy table. Due to the lack of tables, three particle board conference room tables have been re-purposed from WCU salvage to serve as workable space for human remains analysis. These current wooden tables are insufficient in numerous ways, most importantly they are (1) not the appropriate size and cannot fit an entire adult human skeleton in anatomical position (the industry standard for skeletal analysis), (2) the current tables lack an elevated rim or edge, so small bones easily roll or can be knocked off the table and lost or destroyed, also posing potential biohazard concerns, and (3) they are too low to be used without sitting down, forcing awkward angles for analytical work, most of which requires standing. In conjunction with these new tables, we're requesting eight lab stools (two for each table). These lab stools are specifically designed for potentially biohazardous labwork (they have easily cleanable surfaces), have very adjustable heights, and will help reduce the potential for ergonomic-related injuries while doing this type of work.</p> <p>This request supports the following 2020 Vision initiatives:</p> <ul style="list-style-type: none"> <li>* Initiative 1.1.7 - Increase the total number of WCU graduates by 25% by 2020 to meet the regional need for an educated work force: Obtaining functional lab tables will allow WCU's Forensic Anthropology Program to engage more students in the WCHIL forensic anthropology lab and expose them to more forensic anthropology casework experience.</li> <li>* Initiative 1.6.3 - Expand efforts to recruit students in programs associated with the curricular focus areas: The overriding justification for these tables is the continued growth and demand of the Forensic Anthropology Program at WCU. The program is unique in the nation and currently struggles to offer students opportunities to participate in operations in the WCHIL due to restricted analytical space and the potential for remains to be lost or destroyed.</li> <li>* Initiative 1.2.3 - Incorporate writing and research into all levels of the curricula: These lab tables will encourage and increase student research and writing as part of courses as well as extra-curricular projects.</li> <li>* Initiative 1.3.2 - Incorporate expectations for experiential and applied learning opportunities, including undergraduate research opportunities, in the curricular review process: With an exclusive undergraduate focus, the Forensic Anthropology Program emphasizes hands-on student learning and research. The ability to learn, study, and research human remains donated to WCU's Forensic Anthropology Program, as well as actual forensic anthropology casework requires functional analytical space. Supporting student scholarship is key for our undergraduates to gain acceptance to graduate programs and for our program to continue to gain notoriety at academic conferences.</li> <li>* Initiative 5.5.5 - Systematically assess and upgrade technologies in support of campus safety objectives: Having actual lab tables will reduce health risks associated with improper analysis (leaning way over to look at something for long periods of time) and potential accidental contact with biohazardous materials.</li> </ul>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Communication**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
8	Audio over IP Integrated Studio System for WWCUFM	WCU: 2.1.5; 2.2.4; 2.3.1; 2.3.5; 5.4.1; 5.4.2 A & S: 2.1.4; 2.2.1; 5.1.1:	\$86,150

**Brief Justification:**

From the 2012 Department of Communication Program Review: "Further, the Communication Department has several deficiencies in lab space and inadequate funding to keep pace with rapid industry changes. Many of the labs have technology that is at the end of their useful life, and stable sources of funding are needed for ongoing maintenance and updating in order to remain current. Specifically, WCU needs to fund the television studio upgrade to high definition and the expansion of new social media labs for journalism and **broadcasting**. . . . Obtain funding to modernize media technology."

WWCU FM is the broadcast service of Western Carolina University and operates 24/7/365 serving Jackson and Haywood counties with the only local FM service. WWCU is a professional laboratory for students seeking careers in broadcasting and related fields and is a community service for the region. The station's signal potentially reaches over 60,000 persons in the coverage area.

The main control board is 26 years old. Ten years ago it was rebuilt as parts for it were being phased out. It is far beyond its service life. The production studio control board was purchased in 1986 and suffered a catastrophic failure in 2006 and was unable to be repaired. The analog production studio console was replaced with an inexpensive semi-professional analog mixer that is 9 years old and at the end of its service life. Both control boards are analog audio.

All of the station programming is digital and has to be interfaced with the older analog control boards through a series of analog-to-digital and digital-to-analog conversion units to route audio through the station and on-air. The station is presently 9 plus years behind the broadcast industry in conversion to digital audio and thus, our students are not being prepared at anywhere near industry standards.

The Axia Audio Over IP Integrated Studio System interfaces the entire broadcast operation from the microphone to the transmitter replacing the main control console, production room control console, and a number of analog-to-digital and digital-to-analog conversion units and an analog-to-digital/ digital-to-analog fiber-optic audio link. The conversion to a digital audio workflow will prepare our students to better enter the industry and allow the station to serve the community better.

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

Division: Academic Affairs

Department/Unit: Chemistry & Physics

Instructions: One page per item listed on Form 1.

Each justification **MUST** link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: *Focusing our Future*. Justification narrative below must:

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
9	Replacement of laboratory equipment and modernization of 200-level gateway chemistry laboratory courses such as CHEM 232, 241 & 242 and supplementing chemistry research	1.1.2.5, 1.2.3, 1.2.4, 3.2.6,4.4.2, 4.4.3, 6.3.7	\$38,100

**Brief Justification:**

Requested funds will be used to purchase small equipment for our sophomore chemistry laboratory courses including CHEM 232, 241, and 242. The items include glassware, hot plates, an analytical balance, vacuum carts (with pumps, vacuum gauge, and assembly), heating mantles, replacement clamps, and a solvent purification system. Increased retention rate to the sophomore level obviously increases enrollment in 200-level courses, requiring larger and more laboratory sections. The nature of the 200-level labs requires the students to maintain individual glassware and supplies. Concurrently, increasing the amount of small equipment and supplies for laboratory courses can actually aid in retention as it creates more positive educational experiences by creating a laboratory environment that does not contain the 'bottlenecks' resulting from inadequate lab equipment. This will increase the throughput of the laboratory performance by students. The solvent purification system helps modernizing the organic teaching laboratories while improving the laboratory safety factors.

This request aligns with the 2020 Strategic Plan with respect to initiative 1.2.3, which charges the University to provide research opportunities at all levels of the curriculum. In our department, a significant amount of equipment and instrumentation is used for both teaching labs and undergraduate and graduate research labs. In our department, we strive to provide our students with a quality research experience that promotes higher levels of student learning with respect to Bloom's Taxonomy and integrates knowledge from various courses. As enrollment increases, we must increase our capacity to simultaneously course-related and research-related lab work so that the quality of research education is not diminished.

A core mission of the chemistry curriculum is to espouse the ability of our students to solve complex problems through use of the scientific method. The key elements of the scientific method are to develop hypotheses, perform experiments to test the hypothesis, and to analyze results in order to iteratively refine the hypothesis. Chemistry is an experiential discipline requiring significant amounts of materials and equipment for students to develop their skills in the scientific method. As such, this request aligns with the 2020 Strategic Plan with respect to initiative 1.2.4, which states that each program should instill the core general education priorities of WCU.

This request aligns with the 2020 Strategic Plan with respect to initiative 1.6.7, which calls for WCU to increase the freshmen to sophomore retention rate to 80%. Retention is related to a quality lab experience in which each student has access to the equipment needed to be successful in their 200-level labs.

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department/Unit: Biology and GNR**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
10	Purchase a new 12-passenger van (2 of 3)	1.1.1, 1.3.2, 1.3.3, 1.4.3, 1.6.2, 2.1.5, 4.4.1, 4.4.2, 5.1.3	\$40,000
<b>Brief Justification:</b>			
<p>Our department is highly field-oriented, which promotes engaged learning by our students and the students that we serve in allied disciplines including in NRM and environmental science; the two vehicles that we currently own are <b>safety hazards</b> and 20 years old, and <b>one is no longer operable and has been surplus</b>; two new vehicles would allow us to continue high quality lab and field trips throughout the region and beyond, including along narrow and steep sites where the repurposed Cat-Tran vehicles wouldn't be able to go; vehicles are also a recruiting (and retention) tool for students and faculty; we would like to bring back more travel and summer courses such as those we offered in Yellowstone National Park and the desert southwest and such vehicles would aid in this mission; such vehicles would also allow us to bring gear and faculty/students to research sites, which are often spur-of-the-moment trips based on student research projects and weather constraints. Access to vans also provides our students with opportunities for professional development (e.g., travel to conferences, travel to research labs at other campuses or institutions) and these are invaluable experience for professional development. Renting vans from an agency such as Enterprise can only partially solve our transportation needs - without reliable and affordable vehicles on site, we cannot complete our mission to our students. The Biology programs received Program Priority scores of "2". The summary statement about our program stated: "The Task Force praised this program's overall quality and productivity, particularly in the critical STEM disciplines". Our program not only supports our own majors, but also plays a critical role in training students from Program Priority "1" disciplines such as Environmental Science and Natural Resource Conservation and Management, in which these vans would be shared along with Geosciences. From GNR: This is a joint request with the Biology Department, which shares similar needs with similar justifications. Frequent, easy, and safe travel to get students taking GNR courses on course-related field trips is essential and valued component of the educational experience is our disciplines, which are largely 'field-based'. This is true especially for NRCM, Geology, and ES majors, where virtually all courses have some 'field' component. NRCM and ES were categorized as 'one' (worthy of investment) in the program prioritization process. However, most off campus trips travel to rural areas with narrow roads (sometimes gravel) where a passenger van is needed. This is also true for access to the on-campus Western Carolina Hydrologic Research Station, most of which is on the West Campus just 1-3 miles from campus; at present, we have 6 GNR faculty with active research involving students and classes at this station. Last, we need vehicles better equipped to transport field equipment to study sites and pick up equipment/materials at local stores. GNR had to surplus its departmental van this recently because it was too old and unsafe to drive.</p>			

VC Priority # \_\_\_\_\_

**Form 6: Justification: University-wide Initiatives  
2016-17**

**Division: Academic Affairs**

**Department/Unit: Forensic Science Program**

Instructions: One page per item listed on Form 5.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

**Vision: Focusing our Future . Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

<b>Priority Number</b>	<b>Budget Request</b>	<b>Strategic Initiative(s) Number (e.g. 3.1.2)</b>	<b>Cost</b>
11	Investment to Establish a Core DNA Sequencing Insitute at WCU	1.1.6, 1.3.2, 2.1.5, 3.1.3, 4.4.1, 4.4.2	\$83,000

**Brief Justification:**

The Forensic Science Program at WCU seeks funding to establish a Core DNA Sequencing Institute to provide DNA analysis services to agencies and laboratories in Western North Carolina and surrounding areas. The FS Laboratories currently house instrumentation that is typically found only at tier 1 research institutions. As a result, faculty and staff are routinely engaged in cutting-edge research that ultimately has a large impact on the forensic community as a whole. Furthermore, our students are exposed to these emerging technologies both in the classroom and the laboratory, and as a result, gain experiences that set them apart from students at other similar universities. Over the past few years, our capabilities and expertise have become nationally recognized. We have partnered with practitioners in both academia and industry to provide training, consultation, and sequencing services that are not readily available in the underserved region of Western North Carolina and other parts of the nation. Some of these interactions have included providing comprehensive training in next-generation DNA sequencing to scientists from the Federal Bureau of Investigation (FBI) and private companies such as MitoTyping Technologies, sequencing of historically relevant samples provided by private laboratories, sequencing of fungal genomes provided by scientists at Washington University in St. Louis, etc. Additionally, we have worked internally with Dr. Brian Byrd from Health and Human Sciences to develop methods to sequence targeted areas in the mosquito genome for molecular speciation. This work included involvement of numerous undergraduate students and resulted in several cross-disciplinary publications. We have also sequenced cryptococcus (fungus) DNA for Dr. Indi Bose from the Department of Biology, and have provided consultation services and sequencer time to Dr. Jessica Moore from the Department of Biology to enable sequencing of RNA from zebra fish. Finally, we have collaborated extensively with the National Institute of Standards and Technology (NIST) to assess the use of different next-generation DNA sequencing platforms for use in criminal casework. This effort resulted in a poster presentation at a national conference that was later reported in Forensic Magazine. Graduate and undergraduate students were involved in all of the aforementioned projects. We are very eager to continue working in this capacity. We have the capability to perform research in much broader areas than those described above including cancer genetics, DNA methylation studies, population genetics, ecology studies, and microbiome analyses to name a few. However, the work we have done up to this point has been fee free. Performing sequencing free of charge is not sustainable and as a result, we have had to turn down requests to work with many individuals who have requested our services. Members of the Forensic Science Program have been working internally to get the facility recognized under the newly formed WCU LLC so that we can charge clients for labor, reagents, and instrumentation time. However, we are still lacking some infrastructure to classify ourselves as a fully-functioning core facility. A significant part of that infrastructure will include the Instrumentation Specialist (see recurring budget request priority 1). In addition to that position, we are requesting \$88,000 to purchase a Covaris DNA shearing instrument (\$25,000), a Laboratory Information Management System (LIMS) software package to enable sample tracking from intake to completion (\$25,000), travel money for faculty and staff to visit other successful core facilities as model institutions, attend meetings organized by the Southeastern Association of Shared Resources (SEASR), and receive additional training as needed (\$5,000), and a two-year graduate student assistantship to help the instrumentation specialist get the Institute up and running (\$28,000). We have already established ourselves as an exceptional facility, and have the demand necessary to make this a successful endeavor. Ultimately, we envision each incoming project to be assigned to a staff member (staff scientist or instrumentation specialist) in combination with outstanding undergraduate or graduate students. The students will be involved in the entire process, playing a large role in consultation, sample tracking and processing, data analysis and reporting. The structure and function of the Institute can be used as a model when teaching students about the intersection between business and biotechnology, and the Institute can be heavily involved in supporting classroom lectures and laboratory activities. Ultimately, this request is in direct alignment with strategic initiative 1.1.6, as we are seeking to establish an institute of study and outreach that is cross-disciplinary in nature. The Institute will establish the organizational structure necessary to support and facilitate external partnerships and collaborations (initiative 3.1.3). Additionally, we feel that the proposed Institute will provide experiential and applied learning opportunities for students majoring in Forensic Science, Biology, Business, Chemistry, Environmental Science, and Health and Human Sciences (initiatives 1.3.2 and 2.1.5). Furthermore, the Institute will accommodate faculty, staff and student research and will provide the infrastructure to support high-level scholarship and competitive research (initiatives 4.4.1 and 4.4.2). Finally, we are certain that establishing the Institute will enable the FS Program to produce more publications in peer-reviewed journals and secure supplementary grant funding to continue driving our own research interests forward.

VC Priority # \_\_\_\_\_

Investment to establish a Core DNA Sequencing Institute at WCU

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department/Unit: Biology and Chemistry & Physics**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: Focusing our Future. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
12	Cell and Molecular Biology Teaching Equipment, Phage	1.1.1, 1.1.2, 3.2.6, 4.4.1, 4.4.2, 4.4.3,	\$45,000
<b>Brief Justification:</b>			
<p>We are requesting equipment for cell and molecular biology and biochemistry teaching labs overseen by the Biology and Chemistry &amp; Physics Departments. Specifically, this equipment would help support the SEA-PHAGES freshman immersion course, which is sponsored by the Howard Hughes Medical Institute and helps in the retention of STEM students by introducing them to hands-on research and career possibilities in the sciences. The purchased equipment would also be used in many other teaching labs, reaching approximately 800 students per year in basic cell and molecular biology, microbiology, biochemistry, and genetics courses. We are requesting funding for such basic equipment as pipettes (single channel and pipette aids), electrophoresis chambers and power supplies, an imaging system for gels, a shaker and stand, and spectrophotometers. This equipment would reside in one lab room (Stillwell 125) and would also support summer course offerings such as the cell culture immersion course that we have been offering in May. Our operating and E&amp;T budgets are not sufficient to purchase such high cost items; such equipment would also support interdisciplinary research efforts, including in the health-related fields and ecology and environmental science (e.g., detection of nucleic acids from viruses and bacteria, systematics and identification of plants and animals). Such equipment would also help in recruitment of high quality faculty in molecular biology and related disciplines who use research as a tool in their teaching. STEM disciplines are a critical part of WCU and an area of growth requiring commensurate support. The Departments of Biology and Chemistry &amp; Physics each received a "2" following the Program Prioritization process, but were lauded for their integral goal in the University's STEM missions including supporting nursing and the health sciences and the environmental sciences. This equipment is viewed as a requirement for modern cell and molecular biology research and would also be incorporated into undergraduate and Master's projects.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Criminology & Criminal Justice**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
13	One-time money to be invested in adjuncts/fixed term faculty	1.6.2, 1.3.2, 1.3.3, 1.2.3	\$70,000
<b>Brief Justification:</b>			
<p>Given dire need for instructional capacity across the college, our preference is to see as many funds as possible allocated to adjunct and fixed term faculty positions.</p> <p>We have the good fortune of housing high demand growth disciplines and exceeding national growth patterns. This success has served WCU well by contributing to institutional enrollment growth. The only WCU department with comparable undergraduate size is nursing. This is now a good selling point for the size and scope of the CAS. The downside to being such a growth discipline is the cumulative effect of not being allocated positions reflecting that growth, something that has persisted for years. Consequently, our faculty complement is far below university and college standards.</p> <p>The following key indicators from Catalytics provide a sense of this disproportionality: (1) CCJ currently has 651 of the 2,226 CAS majors or 26.6% and largest major count by a large margin. (2) In spring 15 we generated 5,153 or 11.2% of 46,129 CAS SCH. This was exceeded only by the Departments of English (5,690) and Math &amp; Computer Science (6,216). (3) We conferred 123 of 448 CAS baccalaureate degrees (27.5%) in spring 15. So while the department hosts the largest number of majors, the most degrees conferred and ranks third in SCH generated, there are only 13 full-time faculty, ranking 8th in the CAS while departments generating similar SCH are staffed with 25-34. The difference is observed in our larger class sizes and advising loads.</p> <p>1.6.2 "allocate resources to positively affect enrollment" This position will move toward allocating resources to the Dept of Criminology &amp; CJ in balance with past growth to its current number of majors. 1.3.3 "Ensure that meaningful international/global experiences are available to every student..." 1.3.2 "...expectations for experiential and applied learning opportunities, including undergraduate research opportunities..." 1.2.3 "...writing and research into all levels of the curricula" are all 2020 visions that the Dept of Criminology &amp; CJ are aggressively pursuing, but under-supported with faculty resources as a consequence for the past growth in the numbers of students coming to WCU to pursue our majors. Additional faculty lines are needed to achieve support levels for these goals that are in balance with institutional averages.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: English**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: Focusing our Future. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
14	Upgrade computers in Coulter 105 with Oxygen XML Editor	Initiatives 4.4.3, 5.4.1, 5.4.2	\$1,141
<b>Brief Justification:</b>			
<p>This is the cost of the two-year support and maintenance pack for Oxygen XML Editor software. In order to effectively teach in our computer classrooms, the technology in them needs to be up to date. The electronic classrooms in Coulter are utilized by our technical writing faculty and students, who need the most up to date technology and software for pedagogical purposes. Furthermore, these labs are utilized by all English 101 and 202 students as well as our professional writing students, who need access to this software.</p> <p>Strategic Direction 4: Invest in our People</p> <p>GOAL 4.4: Adequately support for scholarship and creative activities in support of Western Carolina University's mission as a regional comprehensive university.</p> <p>INITIATIVE 4.4.3: increase support for scholarship and creative activities, including funding for reassigned time for scholarship, library support, graduate research assistantships, summer research grants, seed funding, start-up support where appropriate, equipment replacement, and travel for conference presentations.</p> <p>Strategic Direction 5: Invest in our Core Resources</p> <p>GOAL 5.4: Sustain and increase information technology capabilities and capacity required to meet the goals of the University.</p> <p>INITIATIVE 5.4.1: Establish and systematize a sustainable funding model for information technology that accommodates operational support, replacements and upgrades, University growth, and strategic initiatives.</p> <p>INITIATIVE 5.4.2: establish capacity planning, management, and implementation processes to ensure accommodation of mandatory and anticipated information technology needs, including both human resources and technologies (e.g., bandwidth, storage, servers, digital media, software licenses, wireless networking, wired networking, cloud services, etc.)</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Geosciences & Natural Resources**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: *Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
15	12-pass van--joint request	1.3.2, 2.1.1	\$40,000
<b>Brief Justification:</b>			
<p>We understand WCU is actively developing a vehicle rental agreement with a provider. However, it is also our understanding this agreement will not include vehicles available to our departments for ad hoc uses. As such, we will still have a need for a vehicle so we can meet our student, research, and regional service missions.</p> <p>This is a joint request with the Biology Department, which shares similar needs with similar justifications. Frequent, easy, and safe travel to get students taking GNR courses on course-related field trips is essential and valued component of the educational experience in our disciplines, which are largely 'field-based'. This is true especially for NRCM, Geology, and ES majors, where virtually all courses have some 'field' component. NRCM and ES were categorized as 'one' (worthy of investment) in the program prioritization process. However, most off campus trips travel to rural areas with narrow roads (sometimes gravel) where a passenger van is needed. This is also true for access to the on-campus Western Carolina Hydrologic Research Station, most of which is on the West Campus just 1-3 miles from campus; at present, we have 6 GNR faculty with active research involving students and classes at this station. Last, we need vehicles better equipped to transport field equipment to study sites and pick up equipment/materials at local stores.</p> <p>GNR had to surplus its departmental van this recently because it was too old and unsafe to drive.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-2017

**Division: Academic Affairs**

**Department/Unit: Chemistry & Physics**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
16	Replacement of laboratory equipment for 100-level gateway laboratory chemistry courses such as CHEM 132, 133, 139 & 140	1.2.3, 1.2.4, 1.6.7.	\$20,900

**Brief Justification:**

University-wide enrollment growth, especially in STEM-related disciplines such as Engineering, Nursing, Biology, Forensic Science, etc., has caused a very large increase in the enrollment of freshman Chemistry 'gateway' laboratory courses. This enrollment growth has caused us to increase students/section and increase the number of sections. The requested funds will be used to purchase glassware, hotplates, Vernier spectrometers, and analytical balances for our CHEM 132, 133, 139, and 140 laboratory courses. It is extremely important to replace aging/failing equipment such as broken hotplates and to upgrade existing Spectronic 20's with smaller footprint and more robust Vernier spectrometers.

This request aligns with the 2020 Strategic Plan with respect to initiative 1.2.3, which charges the University to provide research opportunities at all levels of the curriculum. In our department, a significant amount of equipment and instrumentation is used for both teaching labs and undergraduate and graduate research labs. In our department, we strive to provide our students with a quality research experience that promotes higher levels of student learning with respect to Bloom's Taxonomy and integrates knowledge from various courses. As enrollment increases, we must increase our capacity to simultaneously course-related and research-related lab work so that the quality of research education is not diminished.

A core mission of the chemistry curriculum is to espouse the ability of our students to solve complex problems through use of the scientific method. The key elements of the scientific method are to develop hypotheses, perform experiments to test the hypothesis, and to analyze results in order to iteratively refine the hypothesis. Chemistry is an experiential discipline requiring significant amounts of materials and equipment for students to develop their skills in the scientific method. As such, this request aligns with the 2020 Strategic Plan with respect to initiative 1.2.4, which states that each program should instill the core general education priorities of WCU.

This request aligns with the 2020 Strategic Plan with respect to initiative 1.6.7, which calls for WCU to increase the freshmen to sophomore retention rate to 80%. Retention is related to a quality lab experience in which each student has access to the equipment needed to be successful in their 100-level labs.

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Communication**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
17	Video editing workstations for broadcasting, journalism	WCU: 5.4.2; 5.4.3 A & S: 2.1.4; 2.2.1; 5.1.1:	\$25,000

**Brief Justification:**

From the 2012 Department of Communication Program Review: "Further, the Communication Department has several deficiencies in lab space and inadequate funding to keep pace with rapid industry changes. Many of the labs have technology that is at the end of their useful life, and stable sources of funding are needed for ongoing maintenance and updating in order to remain current. Specifically, WCU needs to fund the television studio upgrade to high definition and the expansion of new social media labs for **journalism and broadcasting** . . . . Obtain funding to modernize media technology."

The department seeks three high-end Mac Pro video editing workstations to support course work and creative scholarship of the approximately 107 broadcasting and journalism students and their faculty. The department presently has three such work stations purchased in 2014. However, the needs of the students far exceed the three workstations capabilities. Two of the present workstations have been moved from the television studio to a room in the Old Student Union next to the communication department office so students can have access from 8 to 5, Monday through Friday. However, the student and faculty needs still exceed the capabilities of the equipment.

As stated in the 2012 program review one of the issues that has hampered the department is "several deficiencies in lab space and inadequate funding to keep pace with rapid industry changes." Three high-end workstations for over 100 students is a barrier to learning and creative scholarship.

Communication students are producing longer length projects and are submitting these to regional and national media festivals and competitions. It was with the present workstations that the 30-minute documentary on the Pride of the Mountains Marching Band was produced. However, four students took over all three available workstations for over a week to produce the project. In situations like this other students are blocked from use of the equipment.

Faculty will use the equipment for teaching and creative scholarship as well. With a total of five workstations in the OSU location a faculty member could teach a class of 15-17 students.

Department of Communication Program Prioritization Category 2.

The Department of Communication 2015-16 recurring E & T allocation is \$9,537

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Geosciences & Natural Resources**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
18	EXO1 Multi-parameter Sondes (2 at \$12,500 each)	1.2.3, 2.1.1, & 1.3.2	\$25,000
<b>Brief Justification:</b>			
<p>A multi-parameter sonde is capable of measuring multiple aspects of water quality in the field with high time-frequency. This particular sonde measures pH, conductivity, temperature, water level, turbidity (cloudiness), and fluorescent dissolved organic matter (fDOM). We have one of these sondes and it has been useful for student projects exploring these parameters in watersheds near campus. However, with only one sonde, it is impossible to compare time-series data at multiple locations. A second and third sonde would enable us to fulfill this crucial aspect of good experimental design.</p> <p>The ease of installation (just placing the sonde in a stream) and ability to compare time-series data at multiple sites will be useful for research and teaching. In recent years it has become possible to measure many water quality parameters using these sondes. These new capabilities are often referred to as the “sensor revolution” and making these measurements is becoming standard practice in science, government agencies, and private sector consulting firms. If we are able to give our students the opportunity to work with these data as part of their undergraduate classes and research projects, they will have a distinct advantage in either the job market or when applying to graduate schools.</p> <p>The parameters that these sondes can measure are related to water quality/chemistry and ecology. Therefore, they can be used to answer a broad range of research questions relevant to classes and students in NRCM, Geology, Biology, Environmental Science, and/or Chemistry.</p> <p>The program prioritization process clearly recognized the value and high quality GNRs three programs and rated both the NRCM and ES programs as category 1. Excerpts from the final report are below.            NRCM (Priority Rank-1): The Task Force believes this program is a strong fit for WCU, shows great potential, and is worthy of future investment.            ES (Priority Rank-1): The Task Force considers this to be a program of great potential and worthy of future investment.            GEOL (Priority Rank-2): The Task Force noted the program’s great potential for growth and distinction.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department/Unit: Mathematics and Computer Science**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
19	Student computer laboratory task chairs	1.6.3, 1.6.6, 4.4.2, 4.4.3, 5.4.2	\$8,550
<b>Brief Justification:</b>			
<p>Request is for 30 Sit On It task chairs at \$285.00 each. The student computer laboratory ST 434 is the central location for linux clients connected to our department server. Students use the lab extensively for projects at all levels of computer science coursework, and it serves as a study space for CS majors. It is heavily used throughout the workday into the late evening. As a result the chairs have suffered from wear and tear and now several are broken, leading to poor ergonomics at best and unsafe conditions at worst. CS SCHs have grown by about 50% in the last five years measured in the IPE SCH report. The number of students majoring in CS or Pre-CS has been 95 in Fall 2012, 104 in Fall 2012, 104 in Fall 2013, and 121 in Fall 2014 (indicating a little more than 25% growth), whereas this main laboratory only seats 16 students at workstations and 14 more on laptops. The 2014-2015 CS PDP (which was informed by a recent ABET Foundation program review) recommends a plan to refresh departmental computer labs to keep us on path for ABET-CAC accreditation. Maintaining a high quality workspace for student computing addresses Initiatives 1.2.3 and 1.3.2 by supporting student research, particularly experiential or applied learning opportunities. It serves Initiative 1.6.3 in that an attractive and functional workspace is a good tool for recruiting majors. The workspace increases support for scholarship and creative activities (Initiatives 4.4.2 and 4.4.3) due to the close connection of student research to the faculty's scholarly programs. Finally, as an upgrade in "technology" it addresses Initiative 5.4.2. In the 2012-2013 program prioritization, CS was category 2.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Anthropology & Sociology**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: Focusing our Future. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
20	Digital X-Ray Cabinet System	1.1.7, 1.6.3, 1.2.3, 1.3.2, 5.5.5, 6.3.7	\$151,827
<b>Brief Justification:</b>			
<p>Cost = \$151,827.00. Annual inspection costs will be approximately \$2,000.00 (these are current costs we already incur for the inspection of our current Faxitron X-ray machine).</p> <p>The usage of radiography is routine in forensic anthropology analysis. As part of the WCU's Forensic Anthropology Program, we currently have a small Faxitron digital cabinet X-ray machine in the WCHIL. Our Faxitron system is currently 12 years old and is starting to fail. There are multiple dead pixel areas on the X-ray sensor, and this equipment is only going to become less and less functional as it wears out. Our current X-ray cabinet is also not large enough to fit certain human bones in, such as a femur or humerus. This significantly reduces the utility of such a machine.</p> <p>Obtaining a functional X-ray machine will allow WCU's FANT Program to engage more students in the WCHIL forensic anthropology lab and expose them to more forensic anthropology casework experience as well as prepare those interested to read radiographic films for future careers in medicine. Additionally, the archaeology and Cherokee Studies staff of WCU's Anth/Soc department would be able to use an X-ray machine as part of historical metal-artifact conservation. Currently at WCU there is no readily available X-ray machine for these more practical and research based initiatives. Additionally, Dr. Johnston and Dr. Passalacqua are in the process of establishing a community-engaged project dealing with the identification and investigation of animal abuse. This project is partnered with the Jackson County Humane Society and will involve the gross external, radiographic, and skeletal examinations of deceased dogs. The goal of this project is to generate additional examination protocol for future investigation of animal abuse, and potentially have impacts on legislation regarding the abuse and death of animals.</p> <p>This request supports the following 2020 Vision initiatives:</p> <ul style="list-style-type: none"> <li>* Initiative 1.1.7 - Increase the total number of WCU graduates by 25% by 2020 to meet the regional need for an educated work force: Obtaining a functional X-ray machine will allow WCU's Forensic Anthropology Program to engage more students in the WCHIL forensic anthropology lab and expose them to more forensic anthropology casework experience as well as prepare those interested to read radiographic films for future careers in medicine.</li> <li>* Initiative 1.6.3 - Expand efforts to recruit students in programs associated with the curricular focus areas: The primary justification for this X-ray cabinet is to support the continued growth and demand of the Forensic Anthropology Program at WCU, especially the growing number of students interested in going to medical school after completing the program. Additionally, it will play a significant role in a course which we are in the process of developing (Paleopathology)</li> <li>* Initiative 1.2.3 - Incorporate writing and research into all levels of the curricula: The X-ray cabinet will be used in conjunction with other skeletal analysis methods for the generation of experiential educational products such as writing up case reports and developing differential diagnosis presentations.</li> <li>* Initiative 1.3.2 - Incorporate expectations for experiential and applied learning opportunities, including undergraduate research</li> </ul>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Anthropology & Sociology**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

**Vision: Focusing our Future . Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
21	Recording Equipment for Field-Based and Lab Classes	4.1.1, 2.1.5, 1.1.2, 1.1.6	\$1,950
<b>Brief Justification:</b>			
<p>Qty Description Cost:            2 Zoom H4n Handy Recorder (digital sound recorder) \$400.00            4 Dinoscope – Basic USB Microscope (AM2111) \$406.00            1 Nikon D3200 SLR Digital Camera \$600.00            2 Ohaus 120g Pocket Scale \$100.00            1 Ohaus Scout Pro Portable Electronic Balance (SP402) \$450.00</p> <p>This recording equipment would be used in field-based and laboratory classes (field schools in archaeology, forensic anthropology, and cultural anthropology) and also in engagement activities in other classes in the department (experimental archaeology, taphonomy, travel courses, etc). Our existing equipment does not provide students with the opportunity to learn how to gather data that is in keeping with industry standards. The equipment would also be available to faculty to support their research that is done outside the context of teaching and, given its portable nature, it facilitates off-campus outreach activities. The archaeology program has a history of outreach engagement activities with programs in WNC whose goal is to keep kids in school and thinking about college, such as GearUpNC and working individually with teachers in local schools.</p> <p>This request supports the following 2020 Plan Initiatives:            * Initiative 4.1.1 - Advocate for the financial resources necessary to offer competitive salaries and compensation packages: This equipment would be available to all faculty and future hires in the Anthropology and Sociology program and Cherokee Studies who conduct fieldwork or interviews, document cultural sites, and conduct collections analysis (archaeology, forensic anthropology, cultural anthropology, language revitalization, sociology) and would allow us to develop a cutting edge certificate program in archaeology.            * Initiative 2.1.5 and 1.1.2 - Create experiential opportunities at the local and regional levels, ensuring all students participate in such opportunities and can document how these learning experiences are interconnected with their program of study, Develop visionary strategic plans for each of the curricular focus areas: Many of these research and outreach activities are done in collaboration with national non-profit organizations such as the Archaeological Conservancy, National Park Service, NC Forest Service, and WNC community-based non-profit organizations.            * Initiative 1.1.6 - Identify and develop integrated, cross-disciplinary centers/institutes of study and outreach, where appropriate, based on the curricular focus areas: We regularly collaborate with Geosciences faculty to conduct geophysical survey of cultural and forensic sites, and the data is used for student research and as curriculum material in both disciplines. We also collaborate with History faculty and students to document cultural heritage sites and materials. This equipment would be available for those applications.</p> <p><b>NOTE: ANSO E&amp;T money (~\$6,000) in its entirety is dedicated to routine recurring costs, primarily those related to laboratory for</b></p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department/Unit: Chemistry & Physics**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
22	JEOL 400MHz NMR spectrometer	1.2.3, 1.2.4, 1.6.7, 4.4.2, 4.4.3	\$150,000
<b>Brief Justification:</b>			
<p>NMR, nuclear magnetic resonance, is one of the most widely used tools in chemistry - and is an analog of a common medical technique, nuclear magnetic resonance imaging (MRI). Our current 300MHz NMR, purchased in ca. 2000, is rapidly nearing the end of its life. Replacement parts are no longer manufactured and used parts are becoming much more scarce. For example during our last instrument failure, it took 4 months to find a suitable replacement part, which was scavenged by the manufacturer from a retired system. The loss of this instrument, which is the most widely used in our department in terms of hours logged, would have severe impact on both teaching effectiveness and undergraduate/graduate research productivity. Another issue is that increased enrollment and more recent increases in retention have limited instrument availability. The proposed instrument provides high quality analysis and includes an autosampler which allows more efficient use of the instrument during business hours. The automation is essential for the use of the instrument after hours. The total cost of the instrument is \$300,000.00. If granted the \$150k from the University, the department would match the amount with funds accumulated from multiple years of roll-over of purposefully saved monies in our instrument service contract allotment.</p> <p>This request aligns with the 2020 Strategic Plan with respect to initiative 1.1.2.5, which challenges WCU to become a hub of innovation in WNC. In order for industry, research entities, and other agencies to be willing to partner with WCU physical science departments, we must be able to provide state-of-the-art scientific infrastructure and the associated vigorous research programs that would ensure a mutually beneficial relationship. The addition of this instrumentation at WCU enhances our ability to perform cutting edge research and answer the problems that external partners would ask WCU to solve.</p> <p>This request aligns with the 2020 Strategic Plan with respect to initiative 1.2.3, which charges the University to provide research opportunities at all levels of the curriculum. In our department, a significant amount of equipment and instrumentation is used for both teaching labs and undergraduate and graduate research labs. In our department, we strive to provide our students with a quality research experience that promotes higher levels of student learning with respect to Bloom's Taxonomy and integrates knowledge from various courses. As enrollment increases, we must increase our capacity to simultaneously course-related and research-related lab work so that the quality of research education is not diminished.</p> <p>A core mission of the chemistry curriculum is to espouse the ability of our students to solve complex problems through use of the scientific method. The key elements of the scientific method are to develop hypotheses, perform experiments to test the hypothesis, and to analyze results in order to iteratively refine the hypothesis. Chemistry is an experiential discipline requiring significant amounts of materials and equipment for students to develop their skills in the scientific method. As such, this request aligns with the 2020 Strategic Plan with respect to initiative 1.2.4, which states that each program should instill the core general education priorities of the University.</p> <p>This request aligns with the 2020 Strategic Plan with respect to initiative 3.2.6, which advocates for the facilitation of collaborative research with external partners. In chemistry research, as well as in other STEM disciplines, external collaboration occurs when the University partner has both the expertise and the infrastructure to add value to the R&amp;D efforts of the external partner. The equipment requested goes towards maintaining the necessary infrastructure for attracting external partners.</p> <p>This request aligns with the 2020 Strategic Plan with respect to initiative 4.4.2, which advocates for the infrastructure necessary to support research endeavors. The modernization and replacement of current instrumentation is vital to our ability to make meaningful contributions to the scientific community. New instrumentation, when strategically chosen to compliment current instrumentation, expand measurement capabilities, and enhance the productivity of researchers, also serves to increase the overall research vitality of WCU. Likewise, the research training available to students using this instrumentation helps build the educated workforce that supports the growth of the WNC region.</p> <p>This request aligns with the 2020 strategic plan with respect to initiative 4.4.3, increased support for equipment replacement. Replacement of Instrumentation is extremely important to maintain our student research and provide new opportunities for scientific research. The request aligns with the 2020 Strategic Plan with respect to initiative 6.3.7, in which WCU faculty are charged with increasing the number of grants and contracts by 50%. An important part of being competitive in the funding process is demonstrating ready access to the infrastructure necessary to complete the research in a timely fashion. Having state of the art instrumentation such as that requested here, can serve to increase the likelihood of proposals being funded.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Forensic Science Program**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: Focusing our Future. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
23	Illumina FGx massively-parallel DNA sequencing system	1.2.4, 1.3.2, 2.1.5, 3.1	\$135,081
<b>Brief Justification:</b>			
<p>The business contract between the Forensic Science Program and Illumina, Inc. has recently expired. The contract included a loaner DNA sequencing instrument and free reagents or reagents provided at a discount of 50% in exchange for research output and assistance with integration of the technology into casework workflow of crime laboratories nationwide. This contract has resulted in at least 22 presentations by faculty, staff and students of novel-research at national and international conferences since 2012, and invited presentations in at least 6 continuing education workshops. A total of 3 successful thesis projects have been completed by Biology M.S. students using this instrumentation. Of the 3 students who have completed their research using this instrumentation, one is a Ph.D. cadidate at the University of Michigan, one has recently interviewed for an IT company in the Netherlands, and one is completing an internship at the Defense Forensic Science Center (DFSC) in Atlanta, GA. Additionally, 2 peer-reviewed publications were a result of Illumina-based research in our laboratory. Furthermore, 2 large grants were awarded to the Forensic Science Program at WCU specifically to evaluate the technology for forensic DNA analysis. Moreover, our laboratory has become well-respected in the Forensic Community with regard to our expertise in this area. As a result, we have hosted FBI scientists on two occasions where we administered training workshops on the Illumina sample preparation workflow, run chemistry and data analysis. We have also hosted scientists from private laboratories (MitoTyping Technologies, State College Pennsylvania) for training workshops. Finally, we have established many collaborations with individuals seeking to obtain data using our instrument. These collaborations include external interactions with the FBI, MitoTyping Technologies, University of Central Florida, InnoGenomics, Washington University, Battelle Memorial Institute, National Institute of Standards and Technologies (NIST), Food and Drug Administration (FDA) and the DFSC to name a few. Internal collaborations include work with Dr. Brian Byrd, Dr. Jessica Moore, and Dr. indi Bose. These relationships align with strategic directive 3.1 by strengthening interanctions between WCU and external partners. In all cases, both undergraduate and graduate student education is bolstered. Our expertise enables us to teach students cutting-edge science both in lecture and hands-on laboratory exercises. In fact, our ability to train students in this way has allowed us to establish a pipeline where qualified undergradute and graduate students complete internships at the DFSC in Atlanta using the same equipment. Since establishing the relationship a year ago, we have sent 2 students to complete internships at that agency. Our educational focus aligns directly with strategic initiatives 1.2.4, 1.3.2, 2.1.5 by incorporating complex problem solving and effective communication into the curriculum and also providing an avenue by which students can take advantage of experiential and applied learning opportunities. Unfortunately, we are going to lose the instrument in the very near future due to the expiration of the contract. Loss of the instrument would have a highly detrimental effect on the education of Forensic Science and Biology students at WCU and research productivity of the FS Program. Due to the cost of the instrument, the program is unable to make the purchase using our operating budget and/or E&amp;T funds without placing ourselves in a large deficit. Therefore, we are requesting to purchase a system using one-time budget request funds.</p>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit: Biology**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

**1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**

**2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
24	Herbarium Cabinets	1.1.2, 3.1.3, 3.2.6, 5.2.1	\$40,000
<b>Brief Justification:</b>			
<p>Western Carolina University houses an herbarium (essentially a library of preserved plant specimens) that is the envy of many other universities and is currently supported by a grant from the National Science Foundation to digitally scan and archive our collections. The herbarium houses some 27,000 plant specimens from the region and beyond and includes some older than 100 years old and many rare species. These plants represent a wealth of biological information and can be used for methods including via DNA analyses. They are stored in wooden cabinets which are susceptible to insect damage and fire and water damage should a fire break out in the herbarium room or should a pipe burst or the sprinkler systems engage. We are requesting an upgrade to metal cabinetry with gaskets that would protect our specimens from insect, mold, fire, and water damage. If such damage were to occur, many of the specimens would be impossible to replace. The Biology programs received Program Priority scores of "2". The summary statement about our program stated: "The Task Force praised this program's overall quality and productivity, particularly in the critical STEM disciplines". Our program not only supports our own majors, but also plays a critical role in training students from Program Priority "1" disciplines such as Environmental Science and Natural Resource Conservation and Management.</p>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit:**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: *Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
25	Stipend to develop applied and public history capstone	2.1.5	\$3,000
<b>Brief Justification:</b>			
<p>Request is for a stipend to allow a faculty member to develop our capstone in line with curricular changes. Faculty member would develop relationships with local and regional organizations and create long-term internship opportunities for history students. The applied/public history capstone will be the culminating experience for many of our history majors. These capstones will capture many of the principles that drive our new curriculum by emphasizing history beyond the classroom, and training students in skills that apply to a broad range of professions, opportunities, and career paths.</p> <p>This request supports the following 2020 Plan initiative: Initiative 2.1.5: "Create leadership and experiential opportunities at the local, regional, national, and international levels, ensuring that all students participate in such opportunities and can document how these learning experiences are interconnected with their program of study."</p> <p>Department of History Program Prioritization Category 2.</p>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit:**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: Focusing our Future. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
26	Equipment to support internships in applied and public history	1.1.6	\$1,500
<b>Brief Justification:</b>			
<p>Request is for equipment to support internships in applied and public history that link with ongoing projects in the College of Arts and Sciences. To expand our growing interdisciplinary partnerships with Cherokee Studies and Anthropology, purchase 2 digital cameras for ongoing 3D projects. These cameras can be paired with technology available in the cooperative History/Cherokee Studies/Anthropology CH3D lab and new GIS workspace. Students in our Public History certificate program can use this technology to develop public history projects such as online museum exhibits, historic preservation work, and material culture studies.</p> <p>This request supports the following 2020 Plan initiative: Initiative 1.1.6: "Identify and develop integrated, cross-disciplinary centers/institutes of study and outreach, where appropriate, based on the curricular focus area."</p> <p>Department of History Program Prioritization Category 2.</p>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit: Biology**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

**1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**

**2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
27	Live Cell Inubator Chamber for Fluorescence Microscope	1.1.1, 1.1.2, 4.1.1, 4.4.1, 4.4.2, 4.4.3, 5.1.3,	\$16,000
<b>Brief Justification:</b>			
<p>We are asking for an add-on component to a microscope purchased last year which would allow us to visualize fluorescently-labeled cellular components within living cells over time. This has great power in tracking cellular development and in locating positive and negative processes in cells in real time. Our operating and E&amp;T budgets are not sufficient to purchase such an item. Such a unit would support interdisciplinary research efforts, including in the health-related fields, forensic science, and ecology and environmental science (e.g., visualization of cells and molecules as well as biological materials from the field). Such a unit would also help in recruitment of high quality faculty in molecular biology disciplines and retention of current faculty. STEM disciplines are a critical part of WCU and an area of growth requiring commensurate support. The Biology programs received Program Priority scores of "2". The summary statement about our program stated: "The Task Force praised this program's overall quality and productivity, particularly in the critical STEM disciplines". This equipment is viewed as a basic requirement for cell and molecular biology research and would be incorporated into the classroom.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Anthropology & Sociology**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: Focusing our Future. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
28	FlashForge 3D Printer	1.1.7, 1.6.3, 1.2.3, 1.3.2, 2.3.3, 5.5.5, 6.3.7	\$1,439
<b>Brief Justification:</b>			
<p>(FlashForge 3D Printer = \$1,199.00; Octave Kapton Tape for Printer Platform (\$45.00x2) = \$90.00; Octave Black ABS Filament for 3D Printers (\$29.95 x5) = \$149.75).</p> <p>Obtaining a desktop 3D printer will allow for unique and competitive educational experiences from WCU's archaeology and forensic anthropology courses, including WCU's Forensic Anthropology and Cherokee Studies Programs. It is becoming more and more commonplace for anthropology and archaeology laboratories to use 3D printers as part of their educational, experiential, and curricular operations. Besides replicating smaller objects and artifacts, the utility of small, desktop 3D printers (such as this) lies within their abilities, not to print large items smaller, but to print small items larger so that students can better see and feel the materials they are learning about (like the shapes of different teeth, for example). Additionally, 3D printing allows instructors to make multiple copies of a single object so that students can all be handling it during a class discussion, rather than passing a single item around a classroom and forcing students to wait while it comes to them. This 3D printer will be used in conjunction with the already established 3D scanning technologies setup in McKee, which are primarily used by the History Dept and the archaeology faculty from the Anth/Soc Dept. In our ever increasingly digital age, other researchers and educators are constantly making publically available 3D scans of items to be printed and used in classrooms and laboratories, such as fossils from the recent hominin find in South Africa by the Rising Star team (<a href="http://morphosource.org/index.php/Detail/ProjectDetail/Show/project_id/124">http://morphosource.org/index.php/Detail/ProjectDetail/Show/project_id/124</a>).</p> <p>This request supports the following 2020 Vision initiatives:</p> <ul style="list-style-type: none"> <li>* Initiative 1.1.7 - Increase the total number of WCU graduates by 25% by 2020 to meet the regional need for an educated work force: We expect access to a 3D printer for anthropology and archaeology-related needs to increase student recruitment. Further, producing tech-savvy students is part of the education process and exposing students to cutting edge technology will assist in making them more marketable for their future careers.</li> <li>* Initiative 1.6.3 - Expand efforts to recruit students in programs associated with the curricular focus areas: The utility of 3D printing is only expected to increase and making one accessible to students, specifically for anthropology and archaeology related objectives will be a large draw to our programs.</li> <li>* Initiative 1.2.3 - Incorporate writing and research into all levels of the curricula: Access to a 3D printer, combined with our pre-existing casting lab materials will allow students new avenues of research; not only focusing on reproduction methods, but using high quality reproductions as part of their data collection protocol.</li> <li>* Initiative 1.3.2 - Incorporate expectations for experiential and applied learning opportunities, including undergraduate research opportunities, in the curricular review process: With an exclusive undergraduate focus, the anthropologists and archaeologists (all of which are associated with either the Forensic Anthropology and Cherokee Studies Programs) emphasize hands-on student learning and research. We pride ourselves on providing the highest quality educational experiences possible and view this opportunity to develop 3D printed teaching materials as the next step in experiential learning and pushing forward pedagogical</li> </ul>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit: Communication**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
29	Television Field Cameras (3)	WCU: 5.4.2; 5.4.3 A & S: 2.1.4; 2.2.1; 5.1.1:	\$18,000

**Brief Justification:**

The Center for Applied Technology television studio in the communication department opened in fall 2004. As a part of the facility there are professional field cameras for broadcasting and journalism students to use during class and to check out to use for location shooting of video projects for class. The FCC mandated that television broadcasters convert to high definition television in June of 2009.

The three cameras needing replacement include three cameras purchased in October of 2004. These cameras are obsolete because they are not high definition cameras and use older format videotape as the recording medium. Professional cameras now use a memory card or hard drive as the recording medium. The cameras impede student learning and student projects shot on these cameras cannot be used in professional and student competitions or on their resume demonstration video that showcases their skills.

From the 2012 Department of Communication Program Review: "Further, the Communication Department has several deficiencies in lab space and inadequate funding to keep pace with rapid industry changes. Many of the labs have technology that is at the end of their useful life, and stable sources of funding are needed for ongoing maintenance and updating in order to remain current. Specifically, WCU needs to fund the television studio upgrade to high definition and the expansion of new social media labs for journalism and broadcasting. . . . Obtain funding to modernize media technology."

The replacement cameras are high definition and record on memory cards and will integrate into the digital workflow of the Center for Applied Technology television studio in the Department of Communication. The cameras will be used by 107 broadcasting and journalism students.

Department of Communication Program Prioritization Category 2.

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit:**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 Vision: *Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
30	Equipment to showcase undergraduate research	2.1.2	\$5,000
<b>Brief Justification:</b>			
<p>Request is to purchase and install 2 monitors to be displayed in the hallway of McKee to provide information to our students about their accomplishments in undergraduate research and research opportunities, as a way of demonstrating the value of a history degree to our current and potential majors.</p> <p>This request supports the following 2020 Plan initiative: Initiative 2.1.2: "Review, and where necessary modify, all student recruitment and promotional materials to include expectations related to academic rigor and standards."</p> <p>Department of History Program Prioritization Category 2.</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

Division: Academic Affairs

Department/Unit: Chemistry & Physics

Instructions: One page per item listed on Form 1.

Each justification **MUST** link to at least one specific strategic initiative from the WCU Strategic Plan, 2020 *Vision: Focusing our Future*. Justification narrative below must:

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
31	Computational time with Amazon Web Services	1.1.2.5, 1.2.4, 3.2.6, 4.4.2,4.4.3,6.3.7	\$10,000
<b>Brief Justification:</b>			
<p>This funding request is aligned with WCU's recently established High Performance Research Computing Service activities where Amazon Web Services are planned to obtain for faculty use. High Performance Computing (HPC) is a scientific tool that allows our faculty and students to model the behavior of natural phenomena which are difficult, costly, or unrealistically to carry out in a laboratory. HPC involves the processing of large data sets and complex relations using parallelized supercomputers. Computer modelling is increasingly used in modern sciences. Specifically, in the Chemistry and Physics department, we have established several lines of research involving computational investigations of biologically relevant macromolecules such as ribosomal proteins and RNA, simulations of NMR shielding effects, computational studies of optical materials for biomedical imaging and emission technologies, and massive outflows from stellar objects. Currently WCU does not house a super-computing facility. However, HPC using the Amazon Web Services (AWS) will support these lines of research by outsourcing the costs of maintenance and down-time to a service provider, which will charge only for on-demand usage. The provider also provides for modular services for various computational needs, which can change from one research project to another.</p> <p>This request aligns with the 2020 Strategic Plan with respect to initiative 1.2.3, which charges the University to provide research opportunities at all levels of the curriculum. In our department, we strive to provide our students with a quality research experience that promotes higher levels of student learning with respect to Bloom's Taxonomy and integrates knowledge from various courses. This funding will allow faculty to train our undergraduate and graduate students to use state-of-the-art computational tools in order to solve modern scientific problems. The students will have the opportunity to be trained on the use of supercomputers which will make them better candidates for their future careers as scientists or in industry. It also allows for the possibility of interdisciplinary collaborations with engineering, mathematics and computer science.</p> <p>Currently, our faculty has had to rely on small, in-house, computer clusters or supercomputer time in national laboratories or other institutions, which researchers have to apply for. The proposal and approval process for use of such facilities can take months. Use of AWS services do not involve an approval process.</p>			

VC Priority # \_\_\_\_\_

**Form 2: Justification: One-Time Budget Request  
2016-17**

**Division: Academic Affairs**

**Department / Unit: English**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

**1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**

**2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
32	Electronic signage	Initiatives 2.1.4, 2.1.5, 5.4.1, 5.4.2	\$5,000
<b>Brief Justification:</b>			
<p>Such information technology is already present in various locations on the WCU campus (Killian Hall and Reid Gym, for example) as a venue for promoting programs and providing information to students, faculty, and staff. We would like one sign for placement by the elevator on the first floor of Coulter, to announce English Department events, courses, honors, and schedules to students. But in addition to promoting our department, content will be maintained and created by our technical writing and creative writing students, and updates will be visual media maintained by students in the English department. Data suggests that consumers (and our students are consumers) respond positively to such technology (See "The Mediating Effects of Perception and Emotion: Digital Signage" in Mall Atmospherics" in The Journal of Retailing and Consumer Services<sup>17</sup>(2010): 205-215 and "A Virtual Marketplace for Advertising Narrowcast over Digital Signage Networks" in Electronic Commerce Research and Applications 3 (2004): 163-175.)</p> <p>Strategic Direction 2: Enrich the Total Student Experience.</p> <p>GOAL 2.1: Foster a student-centered campus culture that emphasizes academic excellence, personal growth, networking opportunities, and global and social awareness.</p> <p>INITIATIVE 2.1.4: Develop and/or formalize mentoring programs that help students develop a sense of personal, intellectual, and professional identity.</p> <p>INITIATIVE 2.1.5: Create leadership and experiential opportunities at the local, regional, national, and international levels, ensuring that all students participate in such opportunities and can document how these learning experiences are interconnected with their program of study.</p> <p>Strategic Direction 5: Invest in our Core Resources</p> <p>GOAL 5.4: Sustain and increase information technology capabilities and capacity required to meet the goals of the University.</p> <p>INITIATIVE 5.4.1: Establish and systematize a sustainable funding model for information technology that accommodates operational support, replacements and upgrades, University growth, and strategic initiatives.</p> <p>INITIATIVE 5.4.2: establish capacity planning, management, and implementation processes to ensure accommodation of mandatory and anticipated information technology needs, including both human resources and technologies (e.g., bandwidth, storage, servers, digital media, software licenses, wireless networking, wired networking, cloud services, etc.).</p>			

VC Priority # \_\_\_\_\_

## Form 2: Justification: One-Time Budget Request 2016-17

**Division: Academic Affairs**

**Department / Unit: Geosciences & Natural Resources**

Instructions: One page per item listed on Form 1.

**Each justification MUST link to at least one specific strategic initiative from the WCU Strategic Plan, 2020**

***Vision: Focusing our Future*. Justification narrative below must:**

- 1) include a brief statement of how the request advances or fulfills the strategic initiative(s) identified.**
- 2) address outcomes from program prioritization and/or program, administrative, accreditation review.**

Priority Number	Budget Request	Strategic Initiative(s) Number (e.g. 3.1.2)	Cost
33	Picarro isotopic water analyzer	1.2.3, 2.1.1, & 1.3.2	\$96,000
<b>Brief Justification:</b>			
<p>Picarro isotopic water analyzer uses a technique called cavity ringdown spectroscopy to differentiate between stable isotopes of hydrogen and oxygen in water. This method is unique in that the instrument is very easy to use and requires little maintenance. Isotopic water analyzers are useful in a variety of fields. Among other applications, natural variations in water isotopes over time and geographic regions have been used to track animal migratory patterns, determine what water vegetation pulls out of soil, and examine how and when precipitation ultimately ends up in streams and rivers. Due to the wide range of potential uses and the lack of a ringdown spectrometer in the chemistry department, this instrument would be of value to Chemistry, Geology, Environmental Science, NRCM, and Biology.</p> <p>In GNR, the primary use would be for hydrologic and wetland studies, including the very active research by faculty and students at the on-campus Western Carolina Hydrologic Research Station, most of which is on the West Campus just 1-3 miles from campus. As of now, samples for isotopic analysis are sent to off-campus laboratories at significant cost and time. The instrument is relatively simple to use, so, if purchased, many students would gain analytic and research experience.</p>			

VC Priority # \_\_\_\_\_