Nomination Signature Page

2020 Virginia Outstanding Faculty Awards

Name of Applicant: ___ Nicholas Balascio, Assistant Professor of Geology ___

Institution: ________ William & Mary ________________________________

Signature (President or Chief Academic Officer):

P. Agouris

Printed Name: ________ Peggy Agouris, Provost __________________________

E-mail address: ________ provost@wm.edu ____________________________

Telephone: ________ (757) 221-1992 ____________________________
Excerpt from William & Mary Mission Statement

At William & Mary, teaching, research, and public service are linked through programs designed to preserve, transmit, and expand knowledge. Effective teaching imparts knowledge and encourages the intellectual development of both student and teacher. Quality research supports the educational program by introducing students to the challenge and excitement of original discovery, and is a source of the knowledge and understanding needed for a better society. The university recognizes its special responsibility to the citizens of Virginia through public and community service to the Commonwealth as well as to national and international communities.
SUMMARY OF ACCOMPLISHMENTS – Nicholas L. Balascio

Professor Nicholas Balascio is a highly accomplished and internationally-recognized climate scientist, a talented and influential teacher, and an outstanding mentor to his research students. He has provided valuable service to William & Mary and to his profession. Professor Balascio was hired into W&M’s Geology Department as Arts & Science’s first climate scientist. A prolific scholar, he has authored 28 peer-reviewed articles, many with student co-authors. Even more impressively, he has received four National Science Foundation grants since 2015 that support his research and provide remarkable opportunities for undergraduates. This record is impressive by any account, and extraordinary given his position in an undergraduate-only department. He is the paragon of the teacher-scholar model.

Professor Balascio is a paleoclimatologist who uses geologic records to reconstruct Earth’s climate history. An authority on Arctic paleoclimatology, he has worked with his student collaborators to investigate how recent rates of warming compare to those of past centuries and millennia by precisely dating and analyzing geochemical clues in lake sediments. His stature was recognized last year when he was invited to join the editorial board of *Journal of Quaternary Science*, an international scientific journal, a rare position to hold as an early career scientist. His recent projects explore the intersection of climate and society: investigating iconic prehistoric civilizations, probing exciting questions about the influence of environmental factors on human migration, and assessing the rise and fall of ancient societies from Norway to Easter Island. He also studies sites in Virginia to reconstruct climate history and to determine how historic human activities have impacted local environments in the Chesapeake Bay watershed.

Professor Balascio is a passionate and highly sought-after teacher who seamlessly integrates ground-breaking research with his teaching and outreach. He teaches geology and climate science at all levels of the W&M curriculum, including an international field course in Norway. He has made meaningful interdisciplinary connections across campus, as well as with a local community college. He is an inspiring mentor to undergraduate research students and encourages them to participate in his regional and international projects. Professor Balascio’s recognition as a Rising Star stems from his exceptional scholarship, dedication as a teacher and mentor, and drive to expand research opportunities for students across disciplines at William & Mary and beyond.

TEACHING

Professor Balascio inspires students through his passion in working with them in the classroom, the laboratory, and the field. Recognizing the powerful influence of mentorship on his own career trajectory, he provides meaningful learning opportunities and invites students at all levels to collaborate with him in the process of science. He does this in the context of climate change and other relevant earth science fields that are of pressing societal importance. Professor Balascio is also committed to integrating research into the curriculum and brings aspects of his own research, and more broadly the process of scientific inquiry, into the classroom.

At the introductory level, Professor Balascio teaches GEOL 110: Earth’s Environmental Systems and GEOL 312: Global Climate Change. Earth’s Environmental Systems provides an introduction to geology and environmental science with a focus on topics and concepts that are relevant to current environmental challenges. He guides students in developing their own curiosity about natural environments and learning how earth processes are investigated. Global Climate Change provides students an introduction to climate science. He challenges students to think about the underlying processes that drive global and regional climate and how that understanding improves our ability to evaluate current and projected future changes. Few students entering these courses intend to major in geology; however, Professor Balascio’s passion and expertise translate into record numbers of engaged students who then declare their
geology major following his courses. One example is Leah Marshall ’19, who wrote, “During my Freshman year, [Dr. Balascio’s] Global Climate Change course inspired me to become a Geology major, changing the course of my college career. This course and others he taught challenge students to apply what they learn, become better scientists and really engage with material in a way many other classes don’t.”

Professor Balascio’s classes are highly interactive. Despite large enrollments (75–100) in introductory courses, he uses a variety of in-class exercises and discussion activities to get students comfortable asking questions and sharing ideas. Most often, Professor Balascio uses the structure of scientific inquiry as a pedagogical technique. He has a keen ability to motivate students to critically engage with class material, which empowers students, even at introductory levels, to generate their own ideas and participate in the process of science. Student comments in his Environmental Systems course illustrate his success, “[He] encouraged participation and discussion. The application of current events made the course even more fascinating,” and “his infectious enthusiasm carried throughout the semester.” A student in Global Climate Change wrote, “I was very pleased to see Dr. Balascio’s ability to keep politics out of such a politically charged subject…. For a non–major, I was glad to have been able to participate in his class and I was pleasantly surprised by his ability to make the material engaging and enjoyable.”

In his advanced paleoclimatology courses, he challenges students to explore climate system dynamics in more depth through reading primary literature, analyzing new theories, and undertaking hands-on laboratory and data collection exercises. He invites students to be ‘colleagues’ in interpreting primary sources of information and motivates them to develop their own ideas and explanations. In Paleoclimatology & Paleoceanography, students complete a multi-week project to develop a new paleoclimate record based on geochemical analysis of sediment cores. They develop a timeline of past events, explain uncertainties in their reconstruction, and draw conclusions from their results. One student noted, “I think I learned more in this class than any class I have ever taken. …[he] does so well at getting your brain to think like a scientist and teaches you to question data and information to verify results before conclusions are drawn.”

Professor Balascio has also forged new opportunities for undergraduates to gain life-changing international field research experiences. In his second year at William & Mary, he developed the course: Regional Field Geology: Lofoten Islands, Norway, to support implementation of the general education curriculum, in particular to provide COLL 300 opportunities, designed to broaden students’ perspectives of themselves in the world. The course provides an amazing opportunity for students to learn about the geologic history of a region above the Arctic Circle, culminating with a two-week trip to Norway. As students travel in the region, they learn to identify and describe landscape features typical of Arctic and alpine environments, perform team mapping projects, and collect data on spectacular rock formations. The geology coursework is coupled with more holistic learning about the country and its cultural history. He has also invited students to join him on international field projects as part of his research. Over each of the past three summers, he has supported one-two students to join him in Norway. Last year he brought James Van Hook ’18 with him to Easter Island, a remarkable experience that inspired James to pursue an M.S in Geosciences at Colorado State University.

Mentoring undergraduate research students is a hallmark of Professor Balascio’s teaching, where he guides students so well through the scientific process that most become contributors to new knowledge in the field. He has six-eight undergraduate students in his research laboratory each year, ranging from student volunteers to geology majors completing their senior research. In the past three years, his students have authored 13 presentations at national and regional scientific conferences, and four students are authors on peer-reviewed scientific articles. Eve Pugsley ‘18, approached him as a rising junior to volunteer in his laboratory and
then did her honors research with him. She commented that his “...excellent mentorship was a highlight of my undergraduate education. He has opened doors to numerous formative opportunities... including collaborative international fieldwork, presenting posters at multiple professional conferences and publication of work completed under his direction in a peer-reviewed journal.” Eve is now a Ph.D. student in the highly ranked Ocean Sciences program at University of California, Santa Cruz.

Already at this early state of his career, Professor Balascio has earned international recognition for his commitment to outstanding undergraduate teaching and the integration of teaching and research. He was recently invited by Professor Jostein Bakke (Head of the Earth Systems Group at the University of Bergen, Norway) to serve on the advisory board for the developing iEarth Program, a newly forming international consortium of institutions dedicated to earth education, where he will assist with their creation of an integrated undergraduate geology curriculum.

**DISCOVERY**

Professor Balascio is an international leader in Artic paleoclimatology, an ever-expanding field that is directly relevant to understanding mechanisms of contemporary global climate change. He has an outstanding record of publishing his work in top-tier journals as well as raising substantial funds to support field and laboratory research. He has published 28 peer-reviewed articles and book chapters, including journals such as *Proceeding of the National Academy of Sciences, Nature Communications*, and *Geology*. As Dr. William D’Andrea, Lamont-Doherty Earth Observatory of Columbia University, summed up, “His impressive publication record is a testament to his caliber as a scientist and has made him very visible in his discipline.” His appointment as an editor for the *Journal of Quaternary Science* underscores further the international reputation he has earned, a remarkable feat for a pre-tenure faculty member.

Professor Balascio has been tremendously successful in securing external funding. He has raised over $517,000 in external awards since coming to W&M. This funding includes four National Science Foundation grants from four different programs: Earth Sciences, Arctic Social Sciences, Archaeology, and Research Experiences for Undergraduates. This is exceptional considering the competitiveness of funding agencies. He had also received $55,000 from the American Chemical Society, as well as $31,000 from internal awards. This amount of funding, and the range of programs tapped, would be enviable at an R1 school with access to graduate students. For a teacher-scholar in an undergraduate-only department, this is truly remarkable.

Professor Balascio uses lake sediments to generate high-resolution records of past changes in global and regional climate. He has traveled to remote regions of the world to extract core samples from the bottom of lakes, which preserve layers of sediment that have accumulated over hundreds or thousands of years. In the laboratory, he employs cutting-edge analytical techniques to determine the age of sediment layers and their physical and geochemical properties to unlock clues about past environments within and around the lake. He established the *Paleoclimate and Paleoenvironmental Analysis Laboratory* at W&M to facilitate this work. The lab contains advanced analytical equipment, some of which was acquired through a grant awarded to Balascio from NSF’s Instrumentation and Facilities program. Dr. Scott Anderson, Distinguished Professor at Northern Arizona University, commends the innovative approach noting, “I know of no other young researcher utilizing this variety of techniques to bear on critical issues of past climate change.”

His research in Canada, Greenland, and Norway addresses important questions about how Arctic temperatures and precipitation patterns naturally varied prior to anthropogenic global warming. In reconstructing the size of glaciers, he has shown how geochemical properties of lake sediments can reflect the advance and retreat of ice, which has connections to past
Professor Balascio has begun new research exploring the links between past climate change and society to improve our understanding of how environmental changes may have impacted early human migration as well as the rise and fall of ancient societies. He has recovered sediment cores near prominent archeological sites and discovered geochemical signatures in the sediment layers of early human landscape impacts. Remarkably, he is leading two separate NSF-funded projects focused on North Atlantic island civilizations: investigations of prominent Viking Age settlements in Norway and sites on the Faroe Islands. In these regions, there are questions about the timing of initial human arrival, the influence of climate changes on early agriculture, and the impact of sea level changes on settlement locations. In 2018, with a grant from William & Mary’s Reves Center for International Studies he and a student began a project addressing questions about the timing of initial settlement of Easter Island, the nature of human impacts on the island’s ecosystem, and the background climate conditions during this period. All of this work has received significant media attention including stories in local, national, and international publications, including *The Washington Post*.

He has brought this approach to Virginia, where he is developing paleoclimate records and is examining the impact of post-Colonial landscape changes. For example, he is working around Williamsburg and has garnered the interest of local historians with his work cataloguing how early agriculture affected sedimentation in local lakes, as well as by studying the legacy of pollution from coal burning in these systems over the last 200 years. Additionally, he has produced data from sites in western Virginia that document climate conditions at the end of the last ice age, 20,000 years ago, which help define long term climate system dynamics in the mid-Atlantic region.

Undergraduate students are involved in all aspects of Professor Balascio’s research, and their research advances science. For example, Moussa Dia ’18 traveled to Norway in 2017 and helped collect cores from a Viking Age harbor. In the following years, he used geochemical measurements to reconstruct the salinity in the harbor, which varied due to sea-level change. In his honors thesis, he found that sea level changes affected the usefulness of the harbor and correlated it with abandonment of surrounding archaeological sites. He presented this exciting finding at the American Geophysical Union’s 2018 meeting. This past year, four students were co-authors with Professor Balascio on peer-reviewed scientific articles based on results of their research. Eve Pugsley ’18 co-authored an article analyzing climate variations over the past 10,000 years in the Faroe Islands where she contributed key chronologic data based on a geochemical analysis of volcanic ash layers. Meredith Meyer ’17, Kassie Smith ’17, and Madison Renshaw ’18 studied the sediment record from Lake Matoaka on the W&M campus and are co-authors of an article, “A high-resolution mill pond record from eastern Virginia reveals the impact of past landscape changes and regional pollution history.”

**KNOWLEDGE INTEGRATION**

Professor Balascio clearly understands the importance of making connections between his research and teaching and in placing his research in an interdisciplinary context. His motivation stems from his own experience witnessing the need to convey climate change understanding to broad audiences inside and outside of academia, and the positive impact on student learning gained through the integration of research and teaching. At William & Mary, this thread runs through his approach in the classroom as well as his engagement with research students.
Professor Balascio’s integration of teaching and research extends beyond William & Mary, and advances broader goals of Virginia’s higher education system though a formal collaboration he established between W&M and Thomas Nelson Community College (TNCC). Peter Berquist, Assistant Professor and Chair of Geology and co-Chair of the Science Program at TNCC, and Professor Balascio are providing a bridge between the schools for students interested in geology and STEM fields. This collaboration, supported by an NSF award to Professor Balascio, involves integrating cutting-edge technology into courses at TNCC and providing research opportunities to TNCC students. Each semester Peter Berquist brings a TNCC class to Professor Balascio’s laboratory to use sophisticated equipment and to gain an understanding of analytical techniques in geology. Also, each year interested TNCC students are supported with research stipends to participate in Balascio’s research. Last year, Ella Metzger worked as a research assistant while completing her associate’s degree and was a co-author on the presentation about the project given at the Southeast Geological Society of America Meeting in Charleston, SC. This summer, two other TNCC students have been working in his laboratory and both plan to transfer to William & Mary as geology majors. Ella stated, “…I was guided and encouraged during my time in the lab and quickly felt like part of the team…. I am positive that it will remain one of the most memorable events of my college education.” Professor Balascio’s vision and efforts help prepare community college students to transfer successfully to a 4-year institution to continue their education.

The footprint of Professor Balascio’s work reaches a broad interdisciplinary audience. Current funding comes in part from NSF programs outside his specific field, with awards from NSF’s Archaeology program and Arctic Social Sciences program. This achievement shows his ability to contextualize his research in a framework showing societal relevance. His publication record also demonstrates the interdisciplinarity of his work. For example, he has published several articles with botanists and archaeologists in journal such as Journal of Archaeological Science, and Vegetation History & Archaeobotany. Dr. Stephen Wickler, Research Archaeologist at the University of Tromsø, commented that Balascio possesses “…a rarely encountered superior ability to couple paleoclimate/ paleoenvironmental change to archaeological data.” Furthermore, his publications in high-profile journals reach a broad scientific audience. A recent article in Nature Communications reports results from analysis of a marine sediment core where Balascio and co-authors discovered interesting lags in Atlantic Ocean circulation associated with climate changes, which have broad implications for modern oceanography and climate dynamics.

Since his first year at William & Mary, Professor Balascio has contributed to interdisciplinary teaching. He was part of the development team from 2015-2016, supported by funding from the Commonwealth Center for Energy and the Environment, that designed a new interdisciplinary course to prepare students to solve complex environmental problems. The resulting course, Sustainability and the Chesapeake Bay taught in the W&M School of Business, addresses interdisciplinary issues influencing the sustainability of the Chesapeake Bay from ecological, business, and public policy perspectives. Balascio has contributed lectures every year since 2016 on the physical geography of the Chesapeake Bay watershed and the geologic and climate controls on regional environmental issues. The project-based course encourages students to work together across disciplines to propose solutions to local sustainability issues.

Professor Balascio’s teaching and research are tightly integrated. Undergraduates are involved in the full arc of his research from data collection to publication. Remarkably in just four years, four undergraduate students are authors on peer-reviewed scientific articles and 11 undergraduates have been lead authors on presentations at regional and national scientific conferences. Furthermore, he brings aspects of his research into the classroom. This past year in his advanced Paleoclimatology & Paleoceanography course, he designed a multi-week research project using samples collected from Norway. Students developed new paleoclimate...
data based on a series of sediment cores from a lake in Norway. At semester’s end, one student commented, “I loved the Ostadvatnet lab project,” and another noted, “I really liked getting to explore and discover real data.”

SERVICE

Professor Balascio contributes to his institution, society, and profession. At William & Mary, he has served on the Marine Science Minor committee and several other campus selection committees. He also serves as a pre-major advisor for three to four incoming students and major advisor for over a dozen geology students. He serves the campus community by giving guest lectures for a variety of classes, student programs, and departmental seminars. These include classes such as Sustainability & the Chesapeake Bay and Environmental Archaeology, the Monroe Scholar Program, and seminars he has given across campus in the Department of Anthropology, Environmental Science & Policy program, and the Physical Science program at the Virginia Institute of Marine Sciences. Randy Chambers, W&M Professor of Biology, referred to Balascio as “…the quintessential team player who ‘gets’ what W&M is all about.”

Professor Balascio has expanded international opportunities for undergraduate students by including research students in his field work in Norway and Easter Island and through the international field course that includes travel to Norway (Regional Field Geology: Lofoten Islands, Norway), which ran in 2017 and will be offered again in 2020. Amazingly he has played a lead role in planning for all of these trips, a significant workload in conducting them with such frequency. William & Mary’s Faculty Assembly recognized his accomplishments in this arena and invited him to speak to the Board of Visitors during their winter 2018 meeting about incorporating undergraduate students in international teaching and research, and the opportunities and challenges of such programs.

Professor Balascio is committed to promoting a sense of community within the Department of Geology. He coordinates department events, seminars, and field trips, and has taken the lead in managing the department’s Brown Bag Seminar series since 2016. These seminars provide opportunities for geology students to present research or internship experiences to their peers and afford professional development activities such as graduate school information sessions, career panels, and resume writing sessions. Beyond William & Mary, he routinely accepts invitations to lecture, and has done so recently at Hampton University’s Atmospheric & Planetary Science Department, East Carolina University, and Northern Illinois University. He is also engaged with the local community through his research and teaching collaboration with professors and students at Thomas Nelson Community College and with the Virginia Master Naturalist program where he has been invited to speak about climate change.

Professor Balascio’s authority in this field of study and commitment to interdisciplinary research translate into multiple opportunities. He has convened two sessions on Arctic climate change at the American Geophysical Union national meeting, and regularly serves as an external reviewer for national funding agencies, including the U.S. National Science Foundation, New Zealand’s Marsden Fund, and the European Unions’ Consolidator Grant Program. Last year, he was invited to serve as the Editor for the Americas for the Journal of Quaternary Sciences, a peer-reviewed journal based in London with an international scope. Professor Balascio is responsible for evaluating approximately 35 manuscripts per year, communicating with scientists worldwide during the peer-review process, and coordinating with a production team during publication. A highly capable scholar with an international reach, Professor Balascio generously contributes to strengthening scientific inquiry, contributing new knowledge, and advancing understanding of some of the most complex problems facing the world and the Commonwealth.
PERSONAL STATEMENT – Nicholas L. Balascio

Climate change and the environment were not always on my mind. I grew up extremely disconnected from nature in a densely populated suburb of New York City, a landscape completely modified by housing developments, highways, and shopping centers. It was this disconnect that eventually drew me to learn about more pristine environments and the importance of studying natural systems in assessing issues like climate change. In reflecting on my experiences and how my interest in earth science evolved into a professional career, I have recognized the powerful influence of teachers and mentors.

It was an invitation to South America that began the most memorable experience of my early academic career. I was attending Union College, a small liberal arts school in upstate New York. One of my teachers, Professor Rodbell, who had provided valuable guidance early in my studies, invited me to join him for field work in the Andes of Peru and Bolivia. We spent three weeks in the mountains mapping and studying glaciers and moraines to piece together evidence of their past extent. Aside from the impressive glacial geology, I remember the incredible alpine landscapes, gasping for breath while hiking at elevations exceeding 10,000 feet above sea level, and our numerous interactions with local communities. Working alongside scientists from several other universities, I participated in all aspects of the project, and I quickly became a contributing member of the team. While the lessons learned about the process of scientific research were highly influential—indeed, I still draw upon them today—perhaps even more memorable and influential were the qualities I observed in my mentor. Dr. Rodbell was supportive, willing listen to my ideas, and took time to guide me through the scientific process. The combination of experiencing a new part of the world, learning how research was conducted, and becoming a contributor to science was transformative. Most importantly, it was where the importance of student mentorship was first impressed upon me, and it has remained the central theme of my teaching and scholarship within the context of conducting cutting-edge climate science research. The impact of that opportunity Dr. Rodbell provided me inspires me to empower and engage my own students on international field projects. I have experienced firsthand the direction in which it propelled me, and also the difference I can make for our local, regional, and global communities.

As I progressed in my career, there were other experiences like this one that mark fundamental advances in my perspective about science and teaching. Most of these can be traced to interactions with professors and mentors that I was fortunate to have met along my academic path. These scientists were high quality teachers and leading climate researchers who also fully engaged students in the scientific process. These interactions have motivated me to provide the same level of guidance and transformative opportunities for students at all levels.

My graduate school advisors also shaped both my approach to teaching and research. I pursued a master’s degree at Northern Arizona University working on a project led by my supervisor, Dr. Kaufman, examining glacier-climate dynamics in Alaska. I again found myself in a remote part of the world, this time in the Brooks Range of northern Alaska where my interest in the Arctic was spawned. I was shuttled to isolated valleys for a few weeks each summer by bush pilots and collected data on the former extent of glaciers. Through this work, I developed a better understanding of the sensitivity of the Arctic to climate change. I also was given an opportunity to develop as a teacher under the guidance of Dr. Kaufman, who was also a dedicated and inspiring teacher. I was a teaching assistant for his upper-level geomorphology course, and we spent many hours discussing the course design and planning of class and laboratory exercises. He encouraged me to incorporate aspects of my research in the labs I designed, and I taught several lessons based on my work in Alaska. I was excited to see enthusiastic responses from students. This was an early example of my witnessing students’
appreciation for analyzing real data and making connections to research, which I use when designing coursework today. Dr. Kaufman’s commitment to fostering my approach to teaching provided invaluable lessons early in my graduate studies.

The mentoring approach of my Ph.D. advisor was also impactful. My advisor, Dr. Bradley, a leading climate scientist at the University of Massachusetts, was responsible for managing a large group of scientists and graduate students as part of the Climate System Research Center. He had high expectations and was extremely supportive. Most remarkably, he treated me as a colleague from day one. He asked for my input in lab meetings, had me interact directly with his collaborators, and gave me independence in shaping my dissertation project. He also provided support to explore new collaborations to expand the scope of my work, which enabled me to cultivate connections with scientists in Norway, Iceland, and Canada during this time, an experience that was both daunting and empowering. Ultimately, through this approach, I gained a sense of pride in the ownership of my research and the success that I was able to achieve.

Inviting students to become collaborators in the scientific process is empowering. I remember this most vividly in reflecting on research with Dr. Bradley. Similarly, I encourage my research students to have independence with their projects. I avoid dictating the path of their projects, and give them space and time to work independently so that they can also gain a sense of ownership regardless of the scope of the project. In the classroom, I also invite students to become collaborators in science by guiding them through the processes of scientific inquiry. Through well-designed class and laboratory exercises, I challenge them to think critically about environmental datasets, and generate datasets of their own to analyze and interpret.

I have been extremely fortunate to have had teachers that provided invaluable guidance. I also recognize that these opportunities and experiences are not available to all students. In my first year at William & Mary, I learned about the Virginia Community College System’s Guaranteed Admission Agreements, which provide students graduating from Virginia community colleges with gateways to four-year colleges within the Commonwealth. This is an amazing program and it inspired me to think of ways to promote the program for students interested in geology and other STEM fields. I established a partnership with Thomas Nelson Community College (TNCC) to contribute to this goal. The collaboration with TNCC involves interacting with students in the classroom and providing mentored research experiences to them. This collaboration is an extension of my overall approach to teaching and has been tremendously rewarding.

In my position at William & Mary, I emulate aspects of my experiences in creating an academic environment that will positively impact every student. I cherish being able to interact broadly with the campus community through introductory courses and interdisciplinary teaching, as well as to engage upper-level majors to prepare the next generation of climate scientists. Every time a student comes into my office seeking advice or guidance, I remember how crucial a bit of encouragement can be, or what a profound difference an invitation to participate in classes or outside projects can make. I also know that each encounter with a student serves as an opportunity to help them take that next step, whether it’s a future high school teacher who might not otherwise make connections between environmental challenges and earth science, or a future computer scientist who learns how coding and complex statistics applies to climate model output, or a first-generation student who will benefit from extra help navigating the curriculum.

Climate change has become a way for me to invite students to participate in science and engage in scientific inquiry. I recognize that most students in my classes have not visited glaciers in the Andes or the mountains of Norway and that some, like me, may have grown up without a strong connection to the environment. However, they are the next generation of leaders who will make decisions regarding our environment and this motivates me to take full advantage of every opportunity to help them make those connections today.
ABBREVIATED CURRICULUM VITAE

Education
2011 Ph.D. Geosciences, University of Massachusetts Amherst, MA
2003 M.S. Geology with distinction, Northern Arizona University, AZ
2001 B.S. Geology with honors, Union College, Schenectady, NY

Academic Positions
Assistant Professor, Department of Geology, William & Mary (2015-present)
Lamont Postdoctoral Research Fellow, Lamont-Doherty Earth Observatory of Columbia University, NY (2013-2015)
Postdoctoral Research Associate, Department of Geosciences, University of Massachusetts - Amherst, MA (2011-2013)
Fulbright Fellow, U.S. Department of State, Host: Bjerknes Center for Climate Research, Bergen, Norway (2009)

Research Grants
National Science Foundation, Arctic Social Sciences, 2016-2021 ($315,549)
“Paleoenvironmental perspectives on prehistoric human settlement of Arctic Norway”

National Science Foundation, Research Experiences for Undergraduates, 2018-2020 ($15,800)
Supplemental funding award to existing grant to support undergraduate research and training

National Science Foundation, Earth Sciences Instrument & Facilities, 2017-2020 ($80,135)
“Early Career: Acquisition of a particle size analyzer for undergraduate research and training”

National Science Foundation, Archaeology, 2016-2019 ($241,510; W&M Budget $50,749)
“Collaborative Research: Reassessing the settlement history of the Faroe Islands using lipid biomarkers and environmental genomics”

American Chemical Society, Petroleum Research Fund, 2017-2019 ($55,000)
“Characterizing organic matter accumulation in freshwater coastal plain wetlands of Virginia”

W&M Reves Center, International Faculty Fellowship, 2018-2019 ($10,000)
“Reassessing human, climate, and environmental interactions on Easter Island”

W&M Charles Center, Study Away Initiative for Off-Campus Courses, 2016-2017 ($17,000)
“GEOl 310: Regional Field Geology – Lofoten Islands, Norway”

W&M Faculty Research Grant, 2016 ($4,000)
“Reconstructing the environmental history of freshwater wetlands of eastern Virginia”

Selected Peer-Reviewed Publications (out of 28 total, *undergraduate student author)


**Summary of Teaching and Mentoring at William & Mary**

- GEOL110: Earth’s Environmental Systems
- GEOL310: Regional Field Geology: Norway
- GEOL312: Global Climate Change
- GEOL324: Paleoclimatology & Paleoceanography
- GEOL403: Topics in Paleoclimatology
- Research Supervision: 11 undergraduate senior theses, 4 undergraduate honors theses, committee member on 4 honors theses, 2 Monroe scholarship projects

**Invited Seminars (selected)**

“Reconciling Holocene hydroclimate and temperatures changes of the northern North Atlantic region” – *Department of Geosciences*, Northern Illinois University, IL, 2019

“Arctic climate during the Holocene: new insights using leaf wax isotopes” – *Department of Geological Sciences*, East Carolina University, NC, 2017

“Reconstructing isotopes in precipitation: High Arctic Perspectives” – *Department of Atmospheric and Planetary Sciences*, Hampton University, Hampton, VA, 2016

“Geoarchaeological perspectives on early human settlement and agricultural activities around the North Atlantic” – *Department of Anthropology*, College of William & Mary, 2016

“Lake sediment records of environmental change: Implications for past climate and human-landscape interactions” – VIMS, Physical Sciences Department Lecture, 2015

**Service: Institutional, Departmental, and Professional**

Marine Science Minor Advisory Committee (2017-present)
Pre-Major Advising (2016, 2018, 2019)
Campus Selection Committees: Charles Center Research Fellowships (2017, 2018); Thomas Jefferson Prize in Natural Philosophy (2019), Reves Center Faculty Fellowship (2019)
Coordinator for Geology Department *Brown Bag Seminar Series* (2016-present)
Search Committee Member for Geology Technician Positions (2018, 2019)
Americas Editor, *Journal of Quaternary Science*, handling ~35 manuscripts/year (2018-present)
LETTERS OF SUPPORT (EXCERPTED)

External Colleagues

“In 40 years of graduate teaching, Nicholas Balascio is the best student I have had the pleasure of working with. He has an outstanding academic record, and an excellent set of well-cited publications. Nick has already received many distinct honors which reflect his very strong academic credentials…. it is particularly noteworthy that he has been able to attract funds from four separate NSF Divisions, which demonstrates his innovative ideas and talent in competing for scarce funds…. Virginia is fortunate to have such a talented young faculty member to lead the next generation of earth scientists--he is truly a rising star in the field.”
– Raymond Bradley, Distinguished Professor of Geosciences and Director of the Climate System Research Center, University of Massachusetts, Amherst, MA

“[Professor Balascio] was the best Postdoctoral Scholar I have had the privilege to advise at the Lamont-Doherty Earth Observatory of Columbia University…. Professor Balascio’s research…is fundamentally important to understanding the way Earth’s climate responds to different types of forcing, as well as to understanding human history. His impressive publication record is a testament to his caliber as a scientist and has made him very visible in his discipline. At William & Mary, his capacity for engaging undergraduate students in cutting edge research involving both fieldwork and laboratory work is remarkable and represents a model for STEM education at the University level.”
– William D’Andrea, Associate Research Professor, Fellow of the Center for Climate and Life, and Director of LDEO Organic Geochemistry Facility, Lamont-Doherty Earth Observatory of Columbia University, NY

“I have closely followed Dr. Balascio’s career since his MS degree research, and highly value his contributions in numerous critical research areas…. He has rapidly gained a wide following for his interdisciplinary research…. I know of no other young researcher utilizing this variety of techniques to bear on critical issues of past climate change. The quantity of his recent publications is only exceeded by their quality, and he has far exceeded expectations for assistant professors at my university. In addition, his willingness to literally go the extra mile to introduce students to Arctic environments, both at his home institution as well as others, is truly commendable.”
– R. Scott Anderson, Distinguished Professor of Paleoecology and former Director of Environmental Sciences, Northern Arizona University, Flagstaff, Arizona

“As an archaeologist… my longstanding collaboration with Nick has demonstrated his competence as a research scientist and, in my experience, a rarely encountered superior ability to couple paleoclimate/paleoenvironmental change to archaeological data. Nick has a unique ability and genuine interest in exploring research problems that bridge academic disciplines to produce groundbreaking results…. Nick has also impressed me with his track record in securing research grants and the timely publication of research results…..”
– Dr. Stephen Wickler, Senior Research Archaeologist, The Arctic University Museum of Norway, University of Tromsø, Norway

“Dr. Balascio has quickly developed a strong, successful and diverse research program at the intersection of human science, geosciences and chemistry with a special focus on the Arctic. This challenging working environment has not prevented him from amassing an outstanding publication record…. Professor Balascio has developed an original and independent research program, publishes with leaders in the field…and raises an impressive amount of funding for a scientist at his stage of its career.”
– Pierre Francus, Professor, Institut National de la Recherche Scientifique, Quebec, Canada & Canada Research Chair in Environmental Sedimentology
“[Professor Balascio’s] work in the Arctic documenting climate change is of the highest quality and informs us of how temperatures have changed in the past thus providing a framework for current climate change.”
– Mark Abbott, Professor of Geology and Environmental Science; Climate and Global Change Center, University of Pittsburgh, PA

William & Mary Colleagues

“We are incredibly fortunate to have Nick as a member of our W&M community. From his first day at the College, Nick has hit the ground running, publishing triple the number of papers and snagging an order of magnitude more federal funding than the average assistant professor. There is clearly nothing average about Nick. His research, which brings together scientists from at least five different countries, truly spans the globe.... Nick has put W&M, and the Commonwealth in general, on the map for climate research.....Nick has a reputation as a strong and supportive research mentor, attracting many of our best and brightest majors to work in his lab.” – Rowan Lockwood, Chair and Professor of Geology, William & Mary, 2019 SCHEV OFA Recipient

“Professor Nick Balascio has added an amazing new dimension to earth science research at William & Mary.... During his four years at William & Mary, Professor Balascio has mentored a small army of undergraduate students working on research projects from the Arctic to the South Pacific. I co-led a William & Mary field course with Professor Balascio to Arctic Norway in May 2017, and got to see him teach in the field (sometimes under difficult conditions). He is an outstanding teacher, and the students find his approach to science rewarding. This was an interdisciplinary trip, and Professor Balascio was equally adept at discussing such disparate topics as geomorphology and Viking history. He is a tremendous asset to William & Mary.”
– Christopher Bailey, Professor of Geology, William & Mary

“[Professor Balascio] is a master at merging research and teaching; his research students are engaged in every aspect of his projects, from coring lakes, to analyzing sedimentary grain size, chemical, and isotopic compositions which they ultimately use to reconstruct and model environmental change. Nick developed two new climate change courses at William and Mary; he is engaged and creative in the classroom, giving students focused datasets each week to get them interpreting big-picture problems in climate science.”
– James Kaste, Associate Professor of Geology, William & Mary

“Nick is the quintessential team player who “gets” what W&M is all about (faculty engaged in mentored research with undergraduate students). He’s fit right into the mix of W&M faculty who work with students in geology, environmental science and policy, and other majors on projects that are truly trans-disciplinary. Nick has his students researching projects ranging from local to global. His studies of past climates and the environmental impacts of human civilization–based on reconstructions from lake cores–give students the thrill of the hunt for information buried in the sediment.”
– Randolph Chambers, Professor Biology and Director of the W.M. Keck Environmental Field Laboratory, William & Mary

“Dr. Balascio is a much-valued colleague and an asset to the students and faculty of both the William & Mary Geology Department and the Virginia Institute of Marine Science. His creative scholarship enriches the community of scientists studying climate change and the interactions between human activities and climate. His teaching inspires students and his research has expanded collaborations with faculty colleagues across William & Mary....”
– Elizabeth Canuel, Chancellor Professor of Marine Science, Virginia Institute of Marine Science; Fellow of the Geochemical Society
Undergraduate Students

"I've had the pleasure of knowing Professor Balascio since he first arrived at William & Mary in 2015. In this short time, he has made a remarkable impression on campus, with his 'Global Climate Change' course becoming a must-take at William & Mary. Nick’s enthusiasm for the subject matter and dedication to his students is clearly evident from the line of students you see outside his door regularly throughout the semester…. As a mentor, Nick offered unparalleled guidance and advice, but at the end of the day, his greatest strength was that he motivated me to be my best. I've always been amazed at how many students he mentors as he’s constantly giving his whole self to each and every student."
– Moussa Dia, W&M '18, W&M Center for Geospatial Analysis Fellow 2018-2019

“Nick’s excellent mentorship was a highlight of my undergraduate education. He has opened doors to numerous formative opportunities both during my time at W&M and since, including collaborative international fieldwork, presenting posters at multiple professional conferences and publication of work completed under his direction in a peer-reviewed journal. His high expectations coupled with the enthusiasm and care he dedicates to fostering the development of his students as scientists and communicators brings out the best in undergraduates. He invested in my success, not only as a researcher but as a person, by offering invaluable guidance on navigating the often-intimidating professional world. Experiences gained while working with Nick in the field and lab, and above all his candid advice and sincere encouragement, inspired me to move onward to graduate school with confidence.”
– Eve Pugsley, W&M '18, Ph.D. Candidate in Ocean Sciences, U.C. Santa Cruz

“During my Freshman year, Nick Balascio’s Global Climate Change course inspired me to become a Geology major, changing the course of my college career. This course and others he taught challenge students to apply what they learn, become better scientists and really engage with material in a way many other classes don’t. As a research student in Nick’s lab, he was encouraging throughout the research process and always patient with my endless questions. Thanks to his mentorship, I was able to pursue many exciting scientific opportunities, including an NSF REU internship, field research in Norway and presenting research at a conference, all of which prepared me well for my life after college.”
– Leah Marshall, W&M '19, Natural Resource Manager, Woodstock, VT

“Working with Dr. Balascio during my time at William and Mary, without a doubt, not only made me a better geoscientist, but a better member of the scientific community…. He always made sure to teach to the needs of all of the students in his classroom, and made even the smallest aspects of his lectures interesting and engaging…. [He] also made sure that I knew how to be a great field scientist, both through my undergraduate research project, and by giving me the amazing opportunity to travel with him to Easter Island for field work, which is to this day my favorite and most impactful field experience…. I consider myself abundantly lucky to have worked as closely as I did with Dr. Balascio, and will always carry the lessons that he taught me throughout my life and my career.”
– James Van Hook, W&M '18, M.S. Candidate in Geosciences, Colorado State University

“[Professor Balascio] is committed to his students and wants all of them to understand and enjoy what he is teaching…. Professor Balascio spends extra time out of his week to work with his research students…. The trip that Professor Balascio led to the Lofoten Islands was one of the highlights of my four years in college. He kept us busy everyday, teaching and showing us the amazing glacial geology and landscapes of Norway. Professor Balascio is dedicated to his to his research students…. He wants everyone to enjoy their time doing research within the geology department, and helps all of his students to create high quality work.”
– Emily Mushlitz, W&M ‘19, Geologist at Ramboll Environmental, MA
ADDITIONAL DOCUMENTATION

“[Dr. Balascio] engages students by making the content relevant to them and by having them participate in the practice of science….He provides both theoretical/conceptual frameworks and real-world applications, which we consider to be an excellent combined approach.”

– Department of Geology Mid-Tenure Evaluation

STUDENT ENGAGEMENT OUTSIDE OF THE CLASSROOM

Students in GEOL 312 (Global Climate Change) on field trip to Washington D.C. hear from alums engaged in climate policy and sustainability fields (left) and visit NOAA’s offices of Exploration and Research.

Students in GEOL 310 (Regional Field Geology) on field trip to Norway (left) engage in glacial geology mapping exercise (right).

Students in GEOL 311 (Field Methods) extract core from dry lake bed (left) and students in GEOL 324 (Paleoclimatology) begin their laboratory projects examining sediment cores (right).

Emily Mushlitz presents her research at Geological Society of America conference (left) and Leah Marshall presents her research at a departmental seminar (right).
COURSE EVALUATIONS

**Scores:**

“How would you rate this instructor’s overall teaching effectiveness?”

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Mean Score (out of 5)</th>
<th>Total Number of Students (2015-2019)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Science Seminar: GEOL 407 (taught F15, F16)</td>
<td>4.4</td>
<td>22</td>
</tr>
<tr>
<td>Paleoclimatology &amp; Paleoceanography: GEOL 324 (taught S19)</td>
<td>4.9</td>
<td>12</td>
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<tr>
<td>Global Climate Change: GEOL 312 (taught S16, S17, S18, F18)</td>
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<tr>
<td>Regional Field Geology: Norway: GEOL 310 (taught S17)</td>
<td>4.8</td>
<td>16</td>
</tr>
<tr>
<td>Earth's Environmental Systems: GEOL 110 (taught F15, F16, S18, F18)</td>
<td>4.1</td>
<td>337</td>
</tr>
</tbody>
</table>

Comments from students on evaluation forms:

- “Perhaps the best class that I have taken at William and Mary so far.” (GEOL 312)
- “Professor Balascio was by far the most enthusiastic and dedicated teacher I had this semester, and has an approachable aura that none of my other lecture professors could accomplish.” (GEOL 110)
- “I’m a pre–med Biology major taking this course as a senior, and it has been one of my favorite courses over the past 4 years!” (GEOL 312)
- “This is a fantastic class. I wish more classes were structured this way….it really made me understand WHY we study this material. [Course material] doesn't really mean anything until you get to experience it yourself and we got to do that with this class.” (GEOL 407)
- “This class was one of my favorites because it helped me think about these topics in very different ways. Professor Balascio does a tremendous job of drawing connections to environmental issues that I had never previously imaged.” (GEOL 110)
- “[Dr. Balascio] was my favorite professor of the semester by far….He very clearly had a strong passion for the course subject and that reflected onto his students and especially me, as I am now considering taking a career route closer to what he does.” (GEOL 312)
- "Out of all my classes this semester, this is honestly the one that I will remember the most material for simply because the professor drew a lot of real-world and interesting connections." (GEOL 110)
- “Professor Balascio is great! I am a graduating senior and Professor Balascio has been one of the most enthusiastic professors I've had! You can tell that he is passionate - not just about the material but also about TEACHING the material, which can unfortunately not be the case in other classes.” (GEOL 312)
- “I really loved this class! It helped me understand so much more about climate science than I had known before…it's nice to be able to explain why the changes around us are happening rather than getting sucked into highly politicized discourse….Overall, one of my favorite professors at this school.” (GEOL 312)
- “Though I am not a geology major - or a science person - I am grateful I took this course. It provided me with knowledge and insight into how our climate is changing which I feel I have a responsibility to know! Professor Balascio is clearly a talented scientist who is passionate about geology…” (GEOL 312)
- “[Professor Balascio] does so well at getting your brain to think like a scientist and teaches you to question data and information to verify results before conclusions are drawn.” (GEOL 324)
Paleoclimate & Paleoenvironmental Analysis Laboratory

The laboratory has equipment for the analysis of organic and inorganic components of sediment samples. Students learn to operate equipment and manage data. (Left) Briana Childs ’19 samples a sediment core, (center) Eve Pugsley ’18 shows Sam Davin ’20 data from an Elemental Analyzer, and (right) Moussia Dia ’18 weighs sediment for biogenic silica analysis.

International Field Research

Dr. Balascio’s research requires field work to collect lake water and sediment for analysis. (Left) James Van Hook ’18 and Balascio survey the Rano Kau crater, (center) Eve Pugsley ’18 recovers a sediment trap, and (right) Leah Marshall ’19 lowers water quality sensor into a lake.

Local Field Research & Collaboration with Thomas Nelson Community College (TNCC)

Dr. Balascio’s is also engaged in several local projects, some that include TNCC students. (Left) Meredith Meyer ’17 and Sophie Delzell ’18 prepare to collect sediment cores, (center) Ben Landolt ’19 and Emily Mushlitz ’19 use a ground penetrating radar, and (right) Pete Berquist (TNCC Chair) and Ella Metzger (TNCC student) help conduct research on Queen’s Creek.
OUTREACH

Thomas Nelson Community College (letters of support):
“Dr. Balascio has developed opportunities that rarely exist for 2-year college students and his hands-on guidance has provided deeply meaningful support and encouragement….[He] creatively develops projects in which students gain a deeper understanding of science to address questions of local and societal relevance. In all interactions with my students, Dr. Balascio’s generosity, patience, and intellect shines through….”
– Peter Berquist, Assistant Professor and Chair of Geology, Science Program co-Chair, Thomas Nelson Community College, VA

“…I worked under the direction of Professor Balascio where I was guided and encouraged during my time in the lab and quickly felt like part of the team. The opportunity to work in the field and an actual lab collecting data was an unexpected blessing….He shared tools and knowledge that would not have been available otherwise. Working with someone so passionate about their subject was an extreme privilege and I am positive that it will remain one of the most memorable events of my college education….”
– Ella Metzger, Thomas Nelson Community College Student ’19

Community Talks, Expert Commentary, and News Articles:
“Arctic Climate: Reconstructing the Past to Understand the Future.”, Toano, Virginia, 2018
“2015 was Earth’s hottest year on record, scientists say.” Daily Press, 20 January 2016.
“Climate Scientists, Chesapeake Bay experts look to future with Trump presidency.” Daily Press, 20 November 2016.