



Program/Unit Proposal

For Submitters: This form is used to collect all the information necessary for internal and external approval bodies to evaluate your proposal for a program or unit. Begin by selecting the "Type of Proposal" and complete all fields that appear based on your selection.

For Reviewers: Each submitted proposal includes:

1. responses to the questions for a given program or unit
2. applicable supporting documents available for download.

The status of the proposal is seen by toggling the **View** from "Review" to "Status" at the top of the page.

Please contact curriculum@utah.edu if you have any questions about this form.

Type of Proposal *

New Minor

Proposal Instructions

New Minor Proposal Instructions

Required Documents

- Letters of Support
 - Dean
 - Department Chair
 - Senior Vice President of Health Science Center (if applicable)
 - Interdisciplinary programs (if applicable)
 - Community/Industry (if applicable)

Submission

Proposals should be through the Department and College approvals at least 10 business days prior to the [Undergraduate Council due dates](#).

Approval Process

1. **Department/Faculty Committee** Approval
2. **College Committee** Approval
3. **Undergraduate Council** Approval
4. **Executive Committee/Academic Senate** Approval
5. **Board of Trustees** Approval
6. **Senior Vice President for Academic Affairs (SVP-AA)** Approval
7. **Commissioner of the Utah System of Higher Education (USHE)** Notification

8. Northwest Commission on Colleges and Universities (NWCCU) Notification

Proposal Presentation

1-2 individuals will be asked to present the proposal at the Undergraduate Council and at the Executive Committee/Academic Senate.

Final Approval/Advertising

Following the final approval of your proposal, campus will be notified and ONLY at that point can you begin operations or advertisement.

Tracking

The status of this proposal can be tracked after submission at

<https://utah.kuali.co/app/builder/#/list/approval-process>.

Policies

Minor Policies

Review the [University policy for Minors](#) in the Regulations Library.

Proposal Information

If applicable, include emphases in the **Program/Unit Title(s)** field below.

Program/Unit Title(s) *

Minor in Dark Sky Studies

Sponsoring School/College

College of Architecture + Planning

Sponsoring Department/Program

City and Metropolitan Planning

Is this a Health Sciences proposal?

No

Participating Interdisciplinary Program(s)

Anthropology, Communication, English, Environmental & Sustainability Studies Program, Geography, Parks, Recreation and Tourism Program, Physics & Astronomy, Political Science, Sociology

Proposed Effective Semester

Fall

Proposed Effective Year

2020

Program/Unit Description

Present a brief proposal description.

Dark Sky Studies is an emerging transdisciplinary field that explores the impacts of artificial light at night and the loss of our night skies through a broad range of disciplines. Light pollution—excessive use of artificial light at night—poses environmental and safety threats, and it also prevents us from seeing the starry sky at night. Utah is unique, globally, in both its protection of natural dark-sky places and its intense urban light pollution generating urban core; combined, Utah's rural starry skies and urban over-lighting are an ideal living laboratory for place-based exploration. The W. M. Keck Foundation awarded \$250,000 to the University of Utah to establish a new undergraduate minor in dark sky studies, the first of its kind in the United States. The advisory team is made up of 15 faculty from across campus. This team met from Summer 2019 through Fall 2019 to design the minor.

Classification of Instructional Program (CIP) Code

For CIP code classifications, visit <https://nces.ed.gov/ipeds/cipcode/Default.aspx>.

03.0103

Minimum Credit Hours Required

18

Maximum Credit Hours Required

18

Are you interested in offering this program online?

No

Would you consider offering this program online in the next 5 years?

No

Will any part of this program be offered as an out-of-service area delivery program?

Examples of out-of-service areas include the Asia Campus, Ghana Campus, etc.

No

Is there a major in this field of study?

No

Are students allowed to complete this minor while completing a major in the same department?

Yes

Provide rationale for minor and major completion in same department:

The Dark Sky Studies Minor is open to students from any major on campus, including students in the Department's Urban Ecology BA/BS Program. The content of the minor is unique from the Urban Ecology major. In addition, the transdisciplinary nature of the minor complements our undergraduate major by giving students an opportunity to specialize in a pressing urban problem as well as branch out of the college with the elective requirements. Finally, on a more practical level, CMP received the Keck Grant to create the minor.

Proposal Justification

Program/Unit Rationale

Present a brief program/unit description. Describe the institutional procedures used to arrive at a decision to offer the program/unit. Briefly indicate why such a program/unit should be initiated. State how the institution benefits by offering the proposed program/unit. Provide evidence of student interest and demand that supports potential program/unit enrollment. Include information about which population(s) will be served by the program/unit.

Dark Sky Studies is an emerging transdisciplinary field that explores the impacts of artificial light at night and the loss of our night skies through a broad range of disciplines. Light pollution—excessive use of artificial light at night—poses environmental and safety threats, and it also prevents us from seeing the starry sky at night. Utah is unique, globally, in both its protection of natural dark-sky places and its intense urban light pollution generating urban core; combined, Utah's rural starry skies and urban over-lighting are an ideal living laboratory for place-based exploration. The W. M. Keck Foundation awarded \$250,000 to the University of Utah to establish a new undergraduate minor in dark sky studies, the first of its kind in the United States. The advisory team is made up of 15 faculty from across campus. This team met from Summer 2019 through Fall 2019 to design the minor.

The Dark Sky Studies (DSS) Minor includes courses and faculty from multiple areas at the U: anthropology, architecture, astronomy, atmospheric sciences, design, engineering, english, history, philosophy, physics, public health, pulmonary medicine, religion, urban planning and more. The Minor program will be housed in the Department of City & Metropolitan Planning (College of Architecture + Planning) but is designed to include undergraduate students from across campus. DSS students will explore issues through scientific, humanist and public policy lenses, particularly the negative impacts of artificial light, as well as endeavor to characterize community needs and innovation opportunities inherent in the effort of protecting natural night.

Student clubs are already engaged in projects and activities related to dark sky studies, including the American Society of Civil Engineers, the Utah Public Health Student Ambassadors, the Enviro Club, and PointB. Additionally, CMP3850: Lightscares, the DSS course was offered in Fall 2019. Twenty-one students from diverse majors enrolled (majors include: Architecture, Civil Engineering, Design, French, Parks Recreation & Tourism, Political Science, Psychology, Urban Ecology and Undeclared). CMP3851: Nightscares will be offered in Spring 2020. Enrollment is underway and we already have 15 students from a diversity of majors as well. We anticipate growing interest in DSS courses and minor once the minor is formalized.

In addition, the Dark Sky Studies minor presents opportunities for research and development. For example, the Keck grant is funding a group of faculty and students from Architecture, Engineering, Computer Science and City & Metropolitan Planning to develop a drone prototype to measure light pollution. Students in the dark sky studies courses will use the drone to develop a methodology to measure light pollution in both rural and urban areas. This will lead to opportunities for community-engaged projects as well as research grants and publications. The DSS Minor will also create opportunities for students to connect with local, regional, national, and international organizations working on dark sky issues. For example, faculty involved in the DSS Minor have connections with organizations such as the Colorado Plateau Dark Skies Cooperative and International Dark-Sky Association. Students in the DSS Minor will have opportunities to work with and support these partner organizations, which in turn will provide students valuable learning and professional development experiences.

Labor Market Demand

Provide local, state, and/or national labor market data that speak to the need for this program/unit. Occupational demand, wage, and number of annual openings information may be found at sources such as [Utah DWS Economic Data](#) and the [Occupation Outlook Handbook](#).

Astrotourism, whereby tourists plan their outings based on a destination's access to a starry sky, nets the state of

Utah millions of dollars annually. Rural communities in Utah surrounding the 15 certified Dark Sky places and communities are responding to astrotourism as a driver of economic development by not only employing rangers who are capable of night-sky interpretation, but also investing in municipal code modification and lighting design and retrofitting to continue protecting natural night as a resource. Salt Lake City recognizes the value of responsible lighting, having included principles of light pollution prevention in the 2019 street lighting master plan revision. Utah's physical and social landscapes are rich with opportunities for employment in currently existing dark-sky-aligned roles, as well as innovation in design, consultancy, marketing, and monitoring efforts. Federal agencies and non-governmental organizations are also increasingly mandating and advocating for the preservation of darkness as part of regulatory processes.

Minor students will be well positioned for graduate school and career opportunities in urban planning, conservation, public health, land management, and sustainability in a rapidly growing dark-skies market.

Consistency with Institutional Mission and Impact on Other USHE Institutions

Explain how the program/unit is consistent with the **institution's mission and goals**. Indicate if the program/unit will be **delivered outside of designated service area defined by USHE** in R315; provide justification.

The mission of the University of Utah is "to foster [] student success by preparing students from diverse backgrounds for lives of impact as leaders and citizens." This proposed DSS minor is consistent with this mission as it prepares students for becoming leaders in communities across Utah and the West. As there is currently no dark sky studies minor in Utah, and to our knowledge no minor in the field provided by other Utah institutions, the proposed minor is unlikely to have any impact on other USHE institutions. By adding this minor, the U of U would one of the few institutions worldwide and the first in the nation to offer a course of study related to dark skies.

Finances

What costs or savings are anticipated in implementing the proposed program/unit? If new funds are required, indicate expected sources of funds. Describe any budgetary impact on other programs or units within the institution.

The proposed minor is funded by a \$250,000 grant from the Keck Foundation. This grant covers the cost of instruction, course expenses, and the drone development for the next three years (2019 to 2022). Starting in 2022, we expect some of the cost of instruction will be covered by student enrollment. Additionally, we will add course fees to cover field trips, for example to field stations. We expect positive impacts from anticipated enrollment growth from additional students seeking to pair their academic majors with the DSS minor or the BA/BA in Urban Ecology. Additionally, we are exploring other ways to generate revenue for the program, including on-line courses for students and practitioners living outside of the SLC metropolitan area. However, the department will need to renegotiate the financial model for long term viability of the minor program after the Keck grant ends.

Curriculum

List program curriculum *OR* attach curriculum document below.

- Include all courses, including new courses, to be offered in the proposed program by prefix, number, title, and credit hours.
- Indicate new courses with an asterisk (*).
- The total number of credit hours should reflect the number of credits required.

Program Curriculum

Three new interdisciplinary courses comprise the core of the 18-credit minor. DSS minor students will be required to complete 3 core courses plus 3-4 electives from departments across the campus to further focus their dark sky studies. All courses must be completed with a C- or better.

Students are required to take 9 credit hours of electives. Electives not on the approved list require pre-approval by the Dark Sky Studies minor coordinator.

Program Curriculum and/or Supporting Documents

[minor_darksky_curric.pdf](#) (486.7 kB)

Program Requirements

Admission Requirements

The minor will be open to all undergraduate students who have attained at least a 2.0 cumulative GPA at the time of entry into the minor; once in the minor, students will be required to maintain that GPA through the completion of the minor. To register for the minor, students will complete a registration form that they then submit to the College of Architecture & Planning Student Success Center.

Graduation Requirements

No response provided.

Advising Plan

In addition to the **Advising Plan**, include the answers to the following questions:

- How closely does the proposed curriculum align with current curriculum for advisors?
- What is the ratio of students to advisors?
- Will advisors be expected to participate in marketing, promotion, and recruitment of students?

A program coordinator will advise students in the minor. Additionally, we have a team of 12 faculty from across campus who have agreed to serve as secondary advisors for student interested in the minor. Finally, we will house additional information on the department's website.

Learning Outcomes

Learning Outcomes

All proposals must include the expected learning outcomes. [Guidance on learning outcomes](#) is available from the Office of Learning Outcomes Assessment.

The Department of City & Metropolitan Planning expects students completing the Minor in Dark Sky Studies to achieve the following expected learning outcomes:

- Communicate with others about light pollution, its ecological impacts, human health impacts, and the history of artificial light.
- Apply knowledge of sky motion, celestial mechanics, and functionality of telescopes to observe the night sky.
- Measure the quantity and quality of light, assess existing lighting, calculate energy costs, and design new lighting.

- Comprehend the challenges and opportunities of light pollution and protecting dark skies from a scientific, humanist and public policy perspective.
- Assess and critique current practices of artificial lighting and advocate for better practices for meeting a spectrum of lighting objectives at night.
- Develop community engagement skills, including collecting stakeholder input and matching communities needs with project and design deliverables regarding light pollution.
- Reflect on the human connection with the night sky in diverse cultural contexts.
- Integrate transdisciplinary knowledge from the humanities, the arts, physical, social, and health sciences, to tackle the large scale challenge of retaining Utah's dark skies.

Learning Outcomes Assessment

Include how the program will analyze evidence and evaluate the learning outcomes.

The Department of City & Metropolitan Planning will assess students' attainment of these skills through two primary means: (1) final grades in the 3 required courses in the minor; (2) critique of intermediate and final visual, oral and written presentations of work products created for each of the three required minor courses.

Documentation

Faculty Consultation

Describe the process by which faculty in the participating departments or programs were consulted in the preparation of the proposal in 1-2 sentences.

City & Metropolitan Planning faculty approved the Dark Sky Studies minor proposal on 12/10/19.

College of Architecture & Planning faculty approved the Dark Sky Studies minor proposal on 01/08/20.

Letters of Support

Department Chair/Director Letter of Support

[minor_darksky_los-chair.pdf](#) (187.1 kB)

College Dean Letter of Support

[minor_darksky_los-dean.pdf](#) (182.8 kB)

Optional letter(s) of support:

Interdisciplinary Program(s) Letter(s) of Support

[minor_darksky_los-interdis.pdf](#) (1.4 MB)

Community/Industry Letter(s) of Support

[minor_darksky_los-commind.pdf](#) (7.9 MB)

Optional additional documents:

[POLS-support-DS-Steele.pdf](#) (54.8 kB)

Workflow Questions

Select the council(s) that apply to this proposal: *

Undergraduate Council

Select all that apply: *

None of the above

This form is submitted by: *

Stacy Harwood

Questions about this proposal can also be directed to:

Please indicate 1-2 other individuals who are able to answer questions about this proposal:

For Internal Use Only

NWCCU Approval Notification

No file attached

Curriculum Administration at the University of Utah

curriculum.utah.edu | Marriott Library 1705

(801) 587-7843 | curriculum@utah.edu

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Section III: Curriculum

Program Curriculum

List all courses, including new courses, to be offered in the proposed program by prefix, number, title, and credit hours (or credit equivalences). Indicate new courses with an X in the appropriate columns. The total number of credit hours should reflect the number of credits required to receive the award. **For NEW Emphases, skip to emphases tables below.**

For variable credits, please enter the minimum value in the table below for credit hours. To explain variable credit in detail as well as any additional information, use the narrative box below.

Course Number	NEW Course	Course Title	Credit Hours
General Education Courses (list specific courses if recommended for this program on Degree Map)			
General Education Credit Hour Sub-Total			
Required Courses			
CMP3850	×	Lightscapes	3
CMP3851	×	Nightscales	3
CMP3852	×	Dark Sky Studies Capstone	3
Add Another Required Course			
Required Course Credit Hour Sub-Total			9
Elective Courses			
three electives		ART1050 - Non-Major Darkroom Photography (3)	3
		ANTH 4461 - Behavioral Ecology and Anthropology (3)	3
		ANTH 4186 - Human Ecology (3)	3
		ASTR1060/PHYS1060 - The Universe (3)	
		ASTR1050/PHYS1050/GEO1080 - The Solar System (3)	
		ASTR2500/PHYS2500 - Foundations of Astronomy (3)	
		ASTR4060/PHYS4060 - Observational Astronomy for Scientists (3)	
		ATMOS 3100 - Atmospheric Chemistry and Air Pollution (3)	
		BIOL3460 - Global Environmental Issues (3)	
		BIOL5440 - Urban Ecology (3)	
		COMM1535 - Basic Digital Photography (4)	
		COMM4360 - Consuming the Earth	
		COMM5360 - Environmental Communication (3)	
		ECON3250 - Introduction to Environmental and Natural Resource Economics	
		ECON5260 - Energy Policy Options of Utah (3)	
		ENVST2050 - Introduction to Environmental and Sustainability Science	
		ENVST3720/SBS3270 - Environmental Health Disparities (3)	

Course Number	NEW Course	Course Title	Credit Hours
		ENVST3365 - Environmental Justice (3)	
		ENGL2225 - Science Fiction (3)	
		ENGL2500 - Introduction to Creative Writing (3)	
		ENGL3080 - Studies in Environmental Literature (3)	
		ENGL3510 - Writing Fiction (3)	
		ENGL3520 - Writing Poetry (3)	
		ENGL3530 - Writing Nonfiction (3)	
		GEO1050 - National Parks: Geology Behind the Scenery	
		GEOG1001 - Energy Resources in a Sustainable World (3)	
		GEOG1005 - Earth Environments and Global Change Lab (2)	
		GEOG3110 - The Earth from Space: Introduction to Remote Sensing (2)	
		GEOG3330 - Urban Environmental Geography (3)	
		GEOG3368/ENVST3368 - Energy Choices for the 21st Century (3)	
		GEOG5110 - Environmental Analysis Through Remote Sensing (3)	
		HIST4085 - History of Technology (3)	
		HIST4380 - U.S. Environmental History (3)	
		MG EN2400 - Introductory Surveying (3)	
		PBHL5710 – The Loss of Dark Skies: Public Health Implications of Artificial Light	
		PHIL1003 - Intro: Philosophy and Human Nature (3)	
		PHIL1250 - Reasoning and Rational Decision Making (3)	
		PHIL3300 - Theory of Knowledge (3)	
		PHIL3310 - Science and Society (3)	
		PHIL3350 - History and Philosophy of Science (3)	
		PHIL3530 - Environmental Ethics (3)	
		POLS5322 - Environmental & Sustainability Policy (3)	
		PRTL1150 - Natural Resources Learning: Nature Photography (3)	
		PRTL1258 - Day Hikes and Dark Skies (2)	
		PRT5480 - The Business of Parks, Recreation, and Tourism (3)	
		PRT5680 - Parks and Community Relations (3)	
		PRT5855 - Seminar in Sustainable Tourism and Ecotourism (3)	
		PRT5875 - Sustainable Tourism and Protected Area Management (3)	
		PSY3620/FCS3620 - Environmental Psychology and Sustainability (3)	
		SOC3840 - Environmental Sociology (3)	
		WRTG 2310 - Digital Writing (3)	
Add Another Elective Course			
Elective Credit Hour Sub-Total			9
Core Curriculum Credit Hour Sub-Total			18

Propose a NEW Emphasis to an existing Regent approved program

Program Curriculum Narrative

Describe any variable credits. You may also include additional curriculum information, as needed.

Students are required to take 9 credit hours of electives. Electives not on the approved list require pre-approval by the Dark Sky Studies minor coordinator.

The minor will be open to all undergraduate students who have attained at least a 2.0 cumulative GPA at the time of entry into the minor; once in the minor, students will be required to maintain that GPA through the completion of the minor. To register for the minor, students will complete a registration form that they then submit to the College of Architecture & Planning Student Success Center.



Department of City & Metropolitan Planning

375 S 1530 E RM 235 AAC Salt Lake City, Utah 84112-0370 (801) 581-8255 FAX (801) 581-8217

February 10, 2020

University Curriculum Committee
University of Utah

Dear Reviewers:

I am delighted to add my support for the proposed Dark Sky Studies Minor in the Department of City & Metropolitan Planning. This is an exciting and very unique interdisciplinary opportunity for undergraduate students from across campus. Dark Sky Studies students will explore the importance of dark skies as a natural, cultural and economic resources, as well as grapple with ways to reduce light pollution. I am confident that students who complete this minor will quickly find work and make a difference in many fields including architecture, biology, city planning, ecology, health, engineering, photography, technology, tourism, writing and more.

On December 10, 2019, the Department of City & Metropolitan faculty met and enthusiastically approved the proposal. Similarly, on January 8, 2020, the College of Architecture and Planning Council approved the proposal.

Sincerely,

Stacy Harwood, Ph.D.
Chair and Professor



College of Architecture + Planning

375 S. 1530 E. Room 235 ARCH Salt Lake City, Utah 84112 801-581-8254 FAX 801-581-8217

February 11, 2020

Dr. Martha Bradley-Evans
Office of Undergraduate Studies
University of Utah

Re: proposed interdisciplinary minor in Dark Skies Studies

Dear Senior Associate Vice President Bradley-Evans,

It is my pleasure to write in support of the proposed minor in Dark Skies Studies. Faculty from across campus have been working to develop capacity at the university for studying and teaching about dark sky resources for several years and I am enthusiastic to see this proposed minor that is transdisciplinary move forward.

As articulated in the proposal, Utah is uniquely situated to be the place for studying dark skies and their critical value to human and ecological systems. The importance of dark skies and the threats posed by increasing light pollution are emerging topics in fields as diverse as biology, public health, philosophy, engineering, economics, and planning. It is, hence, fitting that this proposed minor, though hosted by the Department of City & Metropolitan Planning, cuts across disciplines and departments throughout the university, with no fewer than 20 different academic units represented in list of courses for the minor.

We are grateful to the W. M. Keck Foundation for providing funding that will support this minor and to the many colleagues around the university that have devoted countless hours to bring this multidisciplinary proposal to fruition.

Sincerely,

Dr. Keith Diaz Moore, Dean
College of Architecture + Planning

Department of Anthropology

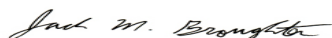
260 S. Central Campus Drive, Suite 4625. Salt Lake City, Utah, 84112

30 December 2019

RE: Dark Sky Studies Minor Proposal

I support the Dark Sky Studies Minor proposal from the City & Metropolitan Planning Department, University of Utah. The state of Utah appears uniquely suited to this growing interdisciplinary field and students earning this minor would be well positioned for graduate school in related fields and career opportunities in a range of areas including urban planning, conservation, and sustainability. The program will also present new opportunities for research and development and has already received a \$250,000 grant from the W.M. Keck Foundation to help establish the minor. The Department of Anthropology offers a number of courses that may be relevant to the minor, including Behavioral Ecology and Anthropology (ANTH 4461) and Human Ecology (ANTH 4186), and I approve the latter to be listed as electives for the minor.

Sincerely,



Jack M. Broughton
Professor and Chair



Stacy Anne Harwood
Chair and Professor
Department of City and Metropolitan Planning
University of Utah

Mark Bergstrom
Ann Darling
Marouf Hasian
Co-Chairs, Department of Communication
University of Utah

Professor Harwood,

The Department of Communication fully supports your proposal for a Dark Sky Studies (DSS) Minor. The Department has strong undergraduate and graduate coursework in environmental communication, and we are pleased to partner with you on the proposed minor. The undergraduate courses listed in your proposal, COMM5360 Environmental Communication, COMM1535 Basic Digital Photography, and COMM 4360 Consuming the Earth, are taught every semester and will enrich the proposed minor.

Dark Sky Initiatives are increasing across the country and preparing students for this transdisciplinary field is timely and significant. The Minor will help prepare students to live and work in Utah, where artificial light pollution poses environmental and safety threats. The proposed minor will compliment many programs across the University and the College of Humanities. Inside the College, the Department of Communication has a COMMSHER major, which prepares students to work in the fields of communication within science, health, environment, and risk contexts. The College also has a nationally recognized Masters degree program in Environmental Humanities, where advanced students study and work with DSS.

The Department looks forward to working with your program as it develops. Please let us know if we can be of any further assistance.



Department of Communication Co-Chairs:

Mark Bergstrom

Ann Darling

Marouf Hasian



December 18, 2019

I am writing to express my full support for the proposed Dark Skies Studies minor. The proposed degree will offer students an exceptional opportunity to pursue interdisciplinary work in a crucially important area of conservation. As the proposal outlines, the DSS initiative has been interdisciplinary from its inception, and my colleagues in the English Department are especially pleased to note that the proposal features a strong commitment to humanistic learning. Indeed, one of our senior professors, Kate Coles, has been involved in DSS from the beginning. The English Department has an excellent and growing Environmental Humanities (EH) track and increasing numbers of our students are interested in EH, eco-criticism, and interdisciplinary approaches to sustainability and responsible ecology. This has been an important area of growth for us, and the DSS minor will offer these students an excellent opportunity to collaborate with others across fields, participate in meaningful fieldwork, and enrich their scholarly and creative projects.

Several English courses in our EH and creative writing tracks will be among the choices for electives, and my colleagues and I look forward to working with DSS students from across the campus in this important interdisciplinary work.

Sincerely yours,

Scott Black
Professor and Chair of English



December 21, 2019

Dear Curriculum Committees,

I am writing as the Director of the Environmental and Sustainability Studies (ENVST) program to indicate my support of the Dark Sky Studies minor proposed by the Department of City and Metropolitan Planning. I have read through the proposal. I am pleased that they are including as electives several ENVST courses—ENVST 2050, ENVST 3720, ENVST 3365, and ENVST 3368. As a program, we welcome such interdisciplinary collaborations.

If we can provide you with any further information, please do not hesitate to contact us.

Brett Clark

Environmental and Sustainability Studies Program

260 S. Central Campus Dr., Rm. 252

Salt Lake City, Utah 84112-9155

(801) 585-5403

FAX (801) 585-6492



December 14, 2019

Letter of Support for the proposed Dark Sky Studies Minor

As the chair of the Department of Geography, it is my pleasure to provide this letter of support for the Dark Sky Studies Minor. Geographers are very interested in light pollution and its effects on natural and social systems. Our remote sensing courses provide the background needed to measure light pollution using satellite data, and we are excited that these and other Geography courses will be included in the list of electives for the minor. I anticipate that there will be interest from Geography majors in taking this minor, and I hope that this minor will raise the profile of night sky issues. I give my strongest support to the approval of this new minor.

Sincerely,

Dr. Philip E. Dennison
Professor and Chair
Department of Geography

Department of Geography
260 S Central Campus Dr, Rm 4625
Salt Lake City, Utah 84112
(801) 581-8218
FAX (801) 581-8219



College of Health

January 6, 2020

TO: Stacey Anne Harwood

FR: Kelly S. Bricker, Director, Professor of Parks, Recreation, and Tourism

RE: Dark Sky Studies Minor proposal.

Dear Dr. Harwood:

It with great enthusiasm I write this letter of support for the Dark Sky Studies Minor. As PRT, we have students interested and already engaged in learning about this important natural resource in Utah and globally. As such, we are very excited to collaborate with the College of Architecture & Planning/Department of Metropolitan Planning. We look forward to participating with our courses in this program as electives within the minor – with numerous synergies including professional practice and related support curriculum.

This minor enhances opportunities for students in PRT, as we address natural resources management, outdoor recreation, and tourism – which all have unique relationships with dark skies as a important resource.

Without hesitation, Parks, Recreation, and Tourism fully support the Dark Skies Studies minor at the University of Utah.

Sincerely,

KELLY S. BRICKER, PH.D.

Director of Parks, Recreation, and Tourism

Professor, Sustainable Tourism, Ecotourism & Nature-based Recreation

Parks, Recreation, and Tourism

270 South 1400 East, Rm 202 Salt Lake City, UT 84112



Department of Physics and Astronomy

115 South 1400 East #201 Salt Lake City, Utah 84112-0830 (801) 581-6901 FAX (801) 581-4801

Salt Lake City, 12/30/2019

To whom it may concern

**Letter of Support for the Dark Sky Studies (DSS) Minor Proposal by the
Department of City & Metropolitan Planning**

Dear Colleagues:

On behalf of the Astronomy Faculty in the Department of Physics & Astronomy, and with their unanimous endorsement, it is my pleasure to write this letter in support of the proposed Dark Sky Studies (DSS) Minor program which has been developed in recent months by faculty from the Department of City & Metropolitan Planning with involvement of faculty from other departments, including the Department of Physics & Astronomy.

In the age of ubiquitous artificial lighting and the resulting global proliferation of light pollution, the need for trained experts in DSS for science, medicine, wildlife biology, urban planning, and other disciplines has become of utmost importance. In Utah, the need for personnel with DSS expertise is particularly high since the state has stark contrasts between still existing dark sky locations and highly dense urban environments with extreme light pollution. Thus, it makes a lot of sense to establish the DSS Minor program at the University of Utah.

As explained in detail in the DSS program proposal, several courses offered by the Department of Physics & Astronomy have been suggested as electives for the proposed DSS minor, including ASTR1060/PHYS1060 (The Universe), ASTR1050/PHYS1050/GEO1080 (The Solar System), ASTR2060/PHYS2060 (Popular Observational Astronomy), ASTR2500/PHYS2500 (Foundations of Astronomy), and ASTR4060/PHYS4060 (Observational Astronomy for Scientists).

I want to confirm our intent to offer these courses continuously in the coming years, each of them at least on a biannual basis for as long as demand is given and Astronomy faculty are available to teach them. It is planned to have at least one of these courses offered each semester. I also want to confirm that these courses would be open to students outside of Physics & Astronomy majors, i.e., the students minoring in DSS.

Sincerely

Dr. Christoph Boehme, Professor, Interim Chair, Department of Physics and Astronomy, University Utah
115 S 1400 E, Salt Lake City, Utah, 84112-0830, boehme@physics.utah.edu, phone: +1-801-581-6806

Friday, January 3, 2020 at 15:39:14 Mountain Standard Time

Subject: Re: Dark Sky Studies Minor Proposal

Date: Thursday, December 12, 2019 at 1:19:09 PM Mountain Standard Time

From: Brent J Steele

To: STACY ANNE HARWOOD

Hi Stacy,

Great to hear from you and thanks for making us aware of this exciting Minor. That'd be one I'd have pursued as an undergrad!

We'd be happy to have that course listed as an elective, and as it's a cross-listed course with ENVST I've checked with them and they concur and are happy to have it listed for this initiative and, if it is approved, this minor.

I'm also happy to write a brief letter of support. Please let me know the template of the letter or otherwise I can use your proposal to inform my supportive letter.

Best
Brent

Brent J. Steele
Professor
Francis D. Wormuth Presidential Chair
Department Chair
Political Science Department
University of Utah
Brent.Steele@utah.edu
Office: 801-585-7987

From: STACY ANNE HARWOOD <harwood@arch.utah.edu>

Date: Monday, December 9, 2019 at 4:10 PM

To: Brent Steele <Brent.Steele@utah.edu>

Subject: Dark Sky Studies Minor Proposal

Dear Brent,

The City & Metropolitan Planning Department is putting together a proposal for a Dark Sky Studies (DSS) Minor.

This minor is open to all undergraduate students across campus. Utah is unique, globally, in both its protection of natural dark-sky places and its intense urban light pollution generating urban core; combined, Utah's rural starry skies and urban over-lighting are an ideal living laboratory for place-based exploration. DSS students will explore issues through scientific, humanist and public policy lenses. The DSS minor includes courses and faculty from multiple areas at the U: anthropology,



December 12, 2019

The City & Metropolitan Planning Department
University of Utah

Dear Ms. Bedera

I am writing to provide my support for a Dark Sky Studies (DSS) Minor in the City & Metropolitan Planning Department at the University of Utah. Our department is delighted to see SOC3840 - Environmental Sociology (3) is included as an elective for the proposed minor.

Sincerely,

Professor & Chair

Department of Sociology
380 S 1530 E RM 301
Salt Lake City UT 84112-0250
(801) 581-6153
FAX (801) 585-3784

CENTER FOR THE LIVING CITY

January 3, 2020

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University Curriculum Committee
C/O Stacy Harwood
Department of City & Metropolitan Planning
College of Architecture + Planning
University of Utah

Re: Minor in Dark Sky Studies

Dear Members of the Curriculum Committee:

While working in the Office of Undergraduate Studies as the Director of the Capstone Initiative Program, we regularly talked about interdisciplinarity. There was an increasing desire to open the traditional boundaries of colleges, departments and degree programs, in part due to the encouragement of then Provost Ruth Watkins. Along with the leadership of Martha Bradley and Ann Darling, we had many discussions about ways to enhance learning and the student experience. When the W. M. Keck Foundation's call for proposals to create unique interdisciplinary undergraduate courses crossed our inboxes, it was easy to imagine ways that the U had much to offer.

An obvious connection was with the U's *Consortium for Dark Sky Studies*. Combined with UGS and the Provost's urging, this new center was exploring ways to break open academic silos and, as we used say, "bridge the towers of excellence." From fields as diverse as anthropology, public health, creative writing, mathematics, all of the sciences, music and the arts, history, architecture, environmental studies, engineering, religion and ethnic studies, an opportunity to create an undergraduate minor in Dark Sky Studies seemed like a perfect fit for a Keck Foundation proposal.

Working closely with Dave Kieda, Dean of the Graduate School, our proposal to the Keck Foundation to create this first-of-its-kind minor in any Research I institution in the U.S. was awarded \$250,000 to get it launched. As demonstrated with the supporting documentation before you, the program has already assembled a robust constellation of "Dark Sky Scholars" from across the campus. After months of meetings, this skilled and enthusiastic cohort created and implemented the first required course for the proposed minor, which was filled nearly to capacity last Fall.

West Coast Office
12160 NW Coleman Drive
Portland, OR 97229-4971
801.633.0936

New York Office
25 Central Park West, #2J
New York, NY 10023
801.633.0936

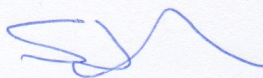
If one of the crises of our time is a crisis of the imagination, this new minor is a small way to create big changes in the ways we integrate knowledge for our students. From learning origin stories from cultures around the globe, to understanding the ways light pollution interrupts migratory patterns of our sister species that could lead to important urban policy change, to helping new generations of architects understand their complicity in the deaths of nearly a billion birds each year in North America, or developing new tools to measure the impact of light on tourism and economic development in our region, this proposed minor can help inform new ways of knowing as students grapple with their sense of place in the world. Students even learn about astronomy.

Outcomes of the minor include more than just increased understanding of the human experience. For some students, the minor will make them more competitive in their fields. For example, students in Parks, Recreation and Tourism will have vital knowledge of ways to mitigate light trespass that affects astrotourism, and also helps reduce carbon footprints in rural and urban areas. Students in Public Health can engage in new research to understand and mitigate the health impacts of artificial light on humans, as mounting evidence shows that some diseases may originate from overexposure to artificial light. Students in urban ecology, planning and architecture can emerge as leaders in their fields by creating new design and policy strategies that address the challenges of light pollution. Students in gender studies and law can understand the challenges of public safety in our gendered spaces, and find creative responses to address the inequities. These are just a few examples of the creative responses that can have measurable outcomes from the minor.

It is my sincere hope that the Curriculum Committee will take this small step for the advancement of knowledge and the creation of new knowledge. By approving the proposed minor, they U will also hold the distinction of creating the first program of its kind anywhere in the world. This was made clear in 2018 when we co-hosted the International Dark Sky Association's annual conference at Snowbird. Scholars from around the world expressed their delight at what we are attempting to do. Trans-disciplinary courses assist students in their ability to synthesize their studies, understand their individual differences, and ultimately, foster creative responses to the complex challenges of our time.

At a point in the history of civilization when only 20% of the developed world can still see the Milky Way, time is of the essence if we are to find new ways to help students understand the complex, interconnected systems that comprise our university, and the universe.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Stephen A. Goldsmith', with a stylized, flowing script.

Stephen A. Goldsmith



COLORADO PLATEAU DARK SKY COOPERATIVE

Aubrey Larsen, Coordinator
darkskycooperative@gmail.com
435.213.7026
Utah Community Development Office

December 19, 2019

To whom it may concern,

The Colorado Plateau Dark Sky Cooperative is enthusiastic to announce our support of the Dark Sky Studies Minor at the University of Utah.

Advances in lighting technology have slowly flooded our world with light, and city nightscapes are now dominated by artificial light – not only diminishing our view of the stars, but disrupting natural ecological systems, creating unsafe environments, and harming human health in ways we are just beginning to understand. Future professionals from a multitude of disciplines will be tasked with addressing the challenges and opportunities associated with night sky conservation.

Dark Sky Studies is a relatively new, unexplored discipline with much potential for growth and discovery. The Minor presents an opportunity to reach a broad and diverse audience of future students and professionals as well as encourage an environment of knowledge and skill sharing – facilitating not only student and faculty collaboration, but collaboration across departments and majors.

It is the hope of the Colorado Plateau Dark Sky Cooperative that students will help to support our goal of providing technical support, such as lighting assessments, to communities interested in protecting the night sky. A lighting assessment performed by University students has already provided the town of Helper with the data necessary to apply for International Dark Sky Community status. The Dark Sky Studies minor will offer students similar hands on experience as well as empower communities with valuable information that can be used to improve night sky visibility, preserve rural character, and create economic development strategies.

The State of Utah is a leader in night sky conservation as demonstrated by the multitude of International Dark Sky Place designations throughout the state, support of the Colorado Plateau Dark Sky Cooperative's mission by multiple state programs, and a concurrent resolution encouraging the use of shielded light fixtures on outdoor lights.

A Dark Sky Studies Minor at the University of Utah will further Utah's leadership position and expand the capacity of advocates throughout the state and beyond.

Thank you,

A handwritten signature in black ink, appearing to read "Aubrey Larsen".

Aubrey Larsen
Coordinator, Colorado Plateau Dark Sky Cooperative
darkskycooperative@gmail.com
cpdarkskies.org

Janet Muir
6098 E Elkhorn Dr.
Eden, UT 84310
janet.e.muir@gmail.com
muir@aya.yale.edu
917.285.6555

Letter of Support for Dark Sky Studies (DSS) Minor Program (CMP/University of Utah)

January 2, 2020

Introduction

I was an initiator [with Stephen Goldsmith, Dave Kieda, and John Barentine (IDA)] of the Consortium for Dark Sky Studies.

Although a fifth-generation Utahn, I spent my professional career almost entirely in starless New York City - first at *The New Yorker* Magazine and, finally, with the media practices of Deloitte and McKinsey & Company.

Significance of Dark Skies for Utah and the University of Utah

Utah and the University of Utah have unparalleled opportunities for global leadership positions in the field of dark sky with its multiple implications for economic development and the extension of learning throughout a substantial number of academic disciplines.¹

Utah occupies the central position of The Great Western Starry Way - more than 60 dark sky places "from Glacier to Grand Canyon" - representing, together, the finest dark skies in the developed world. Why are they the finest? Vast scenic public lands (including a substantial number of the crown jewel national parks) and low moisture for greater transparency of viewing.

Every one of Utah's Mighty Five national parks is either already accredited² as an International Dark Sky Park or in process of becoming so.³ Over half of Utah's state parks are already accredited or in process.

What is the Economic Impact?

Astro-tourism is the single most profitable sub-sector of ecotourism. Again, why? Dark skies cannot be easily passed through - an overnight stay and two meals are generally necessary. Missouri State University estimated that the incremental impact of tourist dollars from the dark skies over the Colorado Plateau for the ten year period 2013-2023 is approximately \$2.5 billion dollars and in excess of 50,000 jobs, with Utah and Arizona accounting for the greatest shares.

¹ Architecture and Planning, Business, Education, Engineering, Fine Arts, Humanities, Law, Medicine, Science, Social and Behavioral Science, among others.

² Arches, Canyonlands, Bryce, and Capitol Reef National Parks

³ Zion National Park

80% of the developed world no longer can view the Milky Way; travel is now necessary to experience the visual and existential wonders of a starry night.

Please see 2017 Annual Report, Utah Governor's Office of Economic Development (Appendix).

I would be happy to answer any questions.

Janet Muir

APPENDIX

Utah Governor's Office for Economic Development Annual Report 2017

Utah Office of Tourism

Program Spotlight

From 2013 to 2023, visitors are expected to spend nearly \$2.5 billion to experience the dark skies over the Colorado Plateau, generating more than 50,000 incremental jobs. (Source: Missouri State University). Of the 50 accredited or in-process International Dark Sky Parks and Communities constituting the greatest concentration of the finest dark skies in the developed world (The Great Western Starry Way), fully half are in Utah.

Thanks to highly scenic public lands and extraordinarily low humidity, Utah is the single state with the best night sky viewing opportunities, offering the marvels of the Milky Way to both locals and tourists from around the world.

This means big dollars. You can drive through Zion National Park, but experiencing dark skies generally means an overnight stay with at least two meals. This economic leverage extends across all seasons and shifts travelers to off-peak hours.

Dark skies also facilitate short-term and long-term job growth while protecting human health, wildlife abundance, community character and cultural legacy. Dark skies are, moreover, a key driver in the rural transition to tourism-based economies.

The UOT team is completely keyed into the momentum, effectively leveraging the science and culture of dark skies in travel promotions through strategic messaging with visiting journalists and at high-profile events. On the digital side, UOT helped assemble a dark-skies marketing toolkit and supported content development for VisitUtah.com.

It's been quite a year for dark sky promotion in the state of Utah, with growing recognition of Utah's economic advantages from a newly prominent and unmatched natural resource.

— **Janet Muir**, Co-Founder, Consortium for Dark Skies Studies (University of Utah)



Contact

Vicki Varela
Managing Director
801-538-3395
vvarela@utah.gov



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

BRIAN C. STEED
Executive Director

Division of Parks and Recreation

JEFF RASMUSSEN
Division Director

December 21, 2019

To Whom It May Concern:

I am writing to voice my enthusiastic support for the Dark Sky Studies Minor at University of Utah. I became involved with Dark Sky stewardship and education in 2015 when over a dozen of our parks asked me for help in pursuing International Dark Sky Park designation. Since that time, I have coordinated the Utah State Parks Dark Sky Initiative. Additionally, since 2016, I have had the honor of being an advisory board member for the University of Utah-based Center for Dark Sky Studies.

One of the first things I did to help parks with their Dark Sky designation quests was to turn to the University of Utah for students who could fill the role of dark sky interns. The first dark sky internship applicant, Bettymaya Foote, blew me away by submitting a Dark Sky-themed Honor's Thesis with her application that detailed her involvement in helping the Fort Douglas facility change its lighting to enhance the area's night sky. Bettymaya became my first dark sky intern, then dark sky intern team lead, and then my first dark seasonal.

From 2015 to 2017, a total of five students from the University of Utah, whose majors included Environmental and Sustainability Studies, Parks, Recreation and Tourism, and Geography, became dark sky interns for us. They helped over a dozen parks with dark sky readings, dark sky educational programs, dark sky mapping, dark sky lighting plans and dark sky applications. Parks staff highly valued these students' cheerful, energetic and competent help.

My first Dark Sky intern superstar, Bettymaya, went on to become the Coordinator for the Colorado Plateau Dark Sky Cooperative and is now the Director of Public Engagement for the International Dark Sky Association.

I just hired another University of Utah student to be my 2020 Dark Sky seasonal employee. Shelby Stock graduated in December 2019 with a Political Science Major and an Environmental and Sustainability Studies Minor. I hired her because she had taken the University of Utah's first official Dark Sky Studies course. This is what she wrote in her application:

I just completed the foundational "Lightscapes" Dark Sky Studies Minor course at The University of Utah. As a student of this course, I explored the emerging multidisciplinary research on artificial light exposure and its impact on human health, animal health, public safety, and how our loss of access to night skies affects us personally and locally. This course included field work, including the use of Sky Quality and illuminance meters to measure and evaluate lighting impacts. After taking this course, I gained a better understanding of sky motion and celestial mechanics, the importance of the human connection to the night sky, and the history of the convoluted light pollution issues we currently face globally.



Page 2

State and national parks, private recreation operations, city planners, architecture firms, light fixture manufacturers, etc., are all going to need interns and employees who are trained in the multifaceted issues that Dark Sky Studies encompass. I look forward to an enhanced dark sky internship partnership with the University of Utah when this Dark Sky Studies Minor is fully set in place!

Please do not hesitate to contact me if you have additional questions or if you desire more information from me.

Best wishes in this endeavor.

Cheers,



Justina Parsons-Bernstein, PhD
Heritage, Interpretation and ADA Resources Coordinator
Utah Division of Parks and Recreation
1594 W. North Temple, #116
SLC, UT 84116
Cell Ph: 801-889-7209
jparsonsbernstein@utah.gov

Come Have an Adventure at a Utah State Park



Department of Political Science ~ Gardner Commons Building 3345 ~ 260 S. Central Campus Drive ~ Salt Lake City, UT 84112

January 6, 2020

Dear Curriculum Committees,

I am writing as the Chair of Political Science to note my support of the Dark Skies initiative as its own minor. In particular, our POLS 5322, Environmental and Sustainability Policy course is a perfect fit with the purposes of this minor. We regularly offer this course and will continue to do so in the future. This also represents an important opportunity to collaborate between our major and department and the College of Architecture and Planning and especially the Department of City and Metropolitan Planning. This would also provide unique opportunities for students. Please consider the Dark Skies initiative minor with my enthusiastic support,

Sincerely,

A handwritten signature in black ink that reads 'Brent J. Steele'. The signature is written in a cursive style and is positioned above a horizontal line.

Brent Steele
Professor and Chair