LIBRARIES RESEARCH FUND APPLICATION FORM

The University of Kansas Libraries Administration allocates money each year for the purpose of furthering the research activities of all library faculty and unclassified professional staff for whom research is a part of their professional assignment. These funds are to be used to cover incidental expenses connected with conducting research, to supplement other sources of research funding, and to assist librarians who have research opportunities that may result in out of pocket expenses.

Funds generally are awarded throughout the year as requests are submitted to the Committee on Research and Scholarly Activities. Requests need only be detailed enough to communicate your needs to the Committee. Supportive documentation can be attached to this form if it is highly relevant to the request.

Please respond to the following questions. When finished, return the request to Tami Albin (albin@ku.edu). Hand-written requests will not be considered. A brief project description will be posted on the CRSA web page http://www.lib.ku.edu/lfp/CRSA/lrf.shtml, if project is funded.

Name:  Karen Cook

Department: Spencer Research Library

1. Title or brief description of project: Using Science to Study the Art in Cartography: Spectrophotometry of Colored Area Symbols on Early Geological Maps

2. Describe the research project: Acquiring a portable spectrophotometer to identify colors and pigments of area symbols on 19th-century geological maps accessible in quantity only in libraries in London (2 weeks in April 2011) and Paris (2 weeks in July 2011) will enable me to upgrade my ongoing research into the origins of geological map design. Shifting from color identification by visual matching of Munsell color chips (a slow process affected by varying ambient lighting and largely superseded in recent decades by spectrophotometry) to non-invasive digital spectrophotometry will provide more information more accurately without harming the maps. The spectrophotometer emits a small flash of light at a colored surface and measures the wavelengths of light reflected back. It will identify colors on maps, as well as providing spectral curve data. Analysis of the results will enable me to compare colors on maps located in different libraries. Identifying color pigments by their distinctive spectral signatures will also reveal information about the watercolors or printing inks employed.

3. Describe the purpose and final outcome of project (i.e. article, book, poster session, conference, etc.): The spectrophotometer will be used for a series of projects and outcomes. The data gathered in London in April 2011 will go into a paper about methodologies for studying color on early geological maps, already accepted for presentation at the International Cartographic Association meeting in Paris in July 2011. Combining the April and July data will result in a paper about the color differences among mid-19th-century geological maps of northeastern France (Alsace-Lorraine) that I plan to present at the North American Cartographic Information Society meeting in Madison, WI in October 2011 or another suitable conference later in 2011 or 2012. This is a pilot project whose results I also plan to use in support of a sabbatical application that I will submit in September 2011 to expand the project to cover all of France. The expanded study will consider the mid-19th-century project conceived by geologist André
Brochant de Villiers to map geologically each of the administrative départements of France. Together with archival research already done, the sabbatical research projected for academic year 2012-2013 will result in either several articles or a monograph or a digital publication. Picking up other threads of research in England, I also plan in the near future to use the spectrophotometer to update and publish several earlier conference papers about the color design and production of early English geological maps.

While using the spectrophotometer to measure geological map colors will enable to meet my personal research goals, it will also familiarize me with equipment and techniques that I can use in the course of my work in Spencer Research Library, Special Collections. Spectrophotometers are commonly used by art museum staff to study works of art and plan their conservation treatment. I would like to initiate spectrophotometric study of the use of the watercolors on Special Collections' large holdings of preliminary drawings and published plates of hand-colored mid-19th-century bird illustrations by John Gould, an ornithological publisher in London during a period of innovation in watercolor manufacture. It would shed light on the adoption of new pigments and the methods of watercolor. My hope is that KU students from programs such as Museum Studies, art history or chemistry could derive applied learning experience from such research about Spencer Research Library collections. See attached letter of support by Whitney Baker, KU Libraries conservator.

4. Estimated time line for completion of project:

The proposed pilot project will be complete by September 2011. Data collection and analysis during the proposed sabbatical project would be completed during academic year 2012-2013; preparation for publication might run into 2014. During 2012 I will also begin seeking opportunities to involve KU students in spectrophotometric study of the John Gould bird drawings and books.

5. Describe, specifically, how requested funds will be used (The award must be completely spent by the June 1, 2011 for FY11 funding):

Funds requested would be used solely toward purchase of an X-Rite i1Basic portable spectrophotometer. See attached printout from X-Rite website.

X-Rite is a leading manufacturer of spectrophotometers. This $995 model is at the bottom end of their line of portable spectrophotometers, which cost up to $8,328 at the top of the line.

The i1Basic has been recommended to me by Professor Murphy G. Brasuel, Dept of Chemistry and Biochemistry, Colorado College, who recently chose this model for a chemistry course when selecting an economical spectrophotometer for use by art conservation students doing color analysis of works of art.

6. Provide an itemized estimation of expenses or evidence of actual accrued expenses:
The cost of an X-Rite i1Basic portable spectrophotometer at the X-Rite website is $995.00 USD. See attached printout from X-Rite website.

7. If any part of your project is dependent on a contractual or other financial arrangement with a third party, please provide a copy of the written agreement outlining the services to be provided and the estimated cost.

NA

Signature: [Signature]
Date: [Date]

Please do not fill out this portion of the form. This portion must be completed by the Committee for Research & Scholarly Activities.
Decision of Committee on Research and Scholarly Activities:
Funded: Yes ___ No ___
If yes, amount Funded ________
If no, reason for decision __________________________
Signature of Library Grants/Research Coordinator:
______________________________
Date: ________________________
January 27, 2011

Tami Albin
Chair, Committee on Research and Scholarly Activities

Dear Tami:

I support Karen Cook’s Library Research Fund application to purchase a spectrodensitometer for use in her research. Karen’s study of watercolor pigments will not only be valuable in geography circles, but also will be of great interest to paper and book conservators whose work focuses on better understanding the materials and techniques used in the creation of rare books, manuscripts, and maps.

The spectrodensitometer is a valuable tool in color theory, matching, and analysis. This piece of equipment could aid both Special Collections and Conservation in our work in a variety of ways. It could be used in analysis of our notable hand-colored drawings and prints, such as the materials in the Gould Collection (currently under consideration for a national-level digitization grant). Similarly, it could aid in better understanding the materials used in creation of our medieval manuscripts, which have gained wider access through the collaborative Digital Scriptorium program. Certainly there is no shortage of ideas for further use of the spectrodensitometer when Karen’s current research project is completed.

I enthusiastically support funding Karen’s proposal and look forward to her conclusions in this exemplary research project.

Sincerely,

Whitney Baker
Conservator/ Associate Librarian
X-Rite: Get exactly the color you need, every time, anywhere in the world.

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X-Rite: EOBA : i1Basic

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i1Basic

Affordable, Professional Spectral Color Measurement

Designed for your unique needs, i1Basic is the perfect system to get you working effectively in a color managed ecosystem. It includes the industry standard i1Pro spectrophotometer and i1 Match Monitor profiling software, helping you achieve accurate color on all your LCD, CRT and laptop displays. Create profiles for any ambient light condition, allowing optimal viewing of color-critical work. Match all monitors in your workgroup with reference profiles. Select from unlimited gamma white point and luminance settings, and optimize gray balance for more neutral and better-defined grays. You can even validate and trend monitor performance.

The i1Basic package also includes i1Share software, which allows you to measure spot colors and capture both flash and ambient light. i1Pro is supported by all major RIP manufacturers, so your profiles will be compatible.

The i1Basic system is also available in a UV version for professionals who require UV filtration for certain types of ink and printing.

As your color management needs increase, simply add additional i1Match modules through a purchased access code to increase the functionality of your i1Basic solution: RGB & CMYK Output, Scanner, Digital Projector, Digital Camera, and i1Editor.

Product Features:

i1Pro Device

- Industry-standard spectrophotometer for both emissive (monitors) and reflective (print) profiling. With additional i1Match modules, use it to profile your monitors, scanners,


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digital cameras (with the optional ColorChecker Digital SG), and RGB and CMYK printers.
- Ambient light measurement head
- Monitor holder
- Soft carrying case
- USB powered, so extra power cable is not required
- Available in either NoFilter and UVCut. Purchase according to your workflow requirements.

i1Match Software

- The included i1Match software features easy and advanced modes for calibrating and profiling LCD, CRT and laptop monitors.
- Create profiles for any ambient light condition, allowing for optimal viewing of color-critical work.
- Use reference profiles to match all monitors in your workgroup
- Select from unlimited gamma white point and luminance settings
- One push button monitor calibration (PBC) support for leading industry monitors.
  (Please see Specifications tab for complete listing.)
- Validate and trend monitor performance
- Optimize gray balance for more neutral and better defined grays
- Includes interactive i1Defined training in the box

Also Included with i1Basic

- Spot color positioning target
- Scanning ruler
- Backup board
- i1 Reflective scan target
- i1Share software for creating, evaluating and communicating color
- Digital Pantone Library

Item #:

- i1Basic EOBA
- i1Basic UV cut: EOBAUV

© 2011 X-Rite, Incorporated. All Rights Reserved.
Inter-instrument agreement: Average DE*94 0.4, max. DE*94 1.0 (Deviation from X-Rite manufacturing standard at 23°C for single measurement mode on 12 BCRA tiles (D50,2°))

Short-term repeatability: DE*94 <= 0.1 (D50,2°/f), with respect to the mean CIELab value of 10 measurements every 3 seconds on white

Data format: Spectral radiance (mW/nm/m2 sr); Luminance Y (cd/m2)

Measurement range: 0.2 ... 300 cd/m2

Short-term repeatability: x,y: +/- 0.002 typical (CRT 5000°K, 80 cd/m2)

Type: Cooine-corrected diffuse light measurement head

Diameter: 6.0 mm

Data format: Spectral irradiance (mw/nm/m2), Illuminance Y (lux)

Power supply: Device powered by USB. USB 1.1 high power device.

i1 Ruler: 35.5 cm x 17 cm

i1 Ruler Board: 35.5 cm X 26.5 cm folded, 35.5 cm X 40 cm unfolded

i1Basic INCLUDES

i1Pro spectrophotometer (measurement device), ambient light measurement head, monitor holder, positioning target, scanning ruler, backup board, i1 Reflective Scan Target, i1Match v3.x software for monitors, i1Share software for creating, evaluating and communicating color.

Interactive Training Modules, Digital Pantone Library, soft carrying case and upgrade voucher (50% discount on any one i1Match Module).

Hardware Specifications

Spectral measurement device:

Measurement modes:
Reflectance single measurement
Reflectance scanning measurement with automatic patch detection
Emission: radiance measurement (monitor measurement)
Emission: irradiance measurement (light measurement)

Spectral analyzer: Holographic diffraction grating with 128 pixel diode array

Optical resolution: 10nm

Physical sampling interval: 3.5nm

Spectral data: Range 380 ... 730 nm in 10nm steps

Measurement aperture: 4.5mm diameter

Interface: USB 1.1

Physical dimensions: Length 151mm, width 66mm, height 67mm (6 x 2.6 x 2.6 inches)

Weight: 185g (6.5oz)

Accessories included: Calibration plate, USB cable, monitor holder, positioning target, scanning ruler, and light measurement head

Measurement geometry: 45°/0°; ring illumination optics, DIN 5033

Light source: Gas filled tungsten (Type A) No or UV cut (Filters not exchangeable)