

USM SSP 26\_026 Notice of Proposed Sole Source Purchase of Data Acquisition Labs Expansion.

[http://www.ms.gov/dfa/contract\\_bid\\_search/Bid](http://www.ms.gov/dfa/contract_bid_search/Bid)

RFx: 3150006851

Comments/objections will be received as required per Section 31-7-13 (C) of the Mississippi Code until 8:00 a.m. (Central Time) on June 8, 2026.

Any person or entity that objects and proposes that the commodity listed is not sole source and can be provided by another person or entity shall submit a written notice to:

Jacob Cochran

Director of Procurement & Contracts 118 College Dr. Box 5003 Hattiesburg, MS 39406

[bids@usm.edu](mailto:bids@usm.edu)

Phone: 601-266-4131

Subject Line must read "Sole Source Objection USM SSP 26\_026"

The notice shall contain a detailed explanation of why the commodity is not a sole source procurement. Appropriate documentation shall also be submitted if applicable.

If after a review of the submitted notice and documents, USM determines that the commodity in the proposed sole source request can be provided by another person or entity, then USM will withdraw the sole source request publication from the procurement portal website and submit the procurement of the commodity to an advertised competitive bid or selection process.

If USM determines after review that there is only one (1) source for the required commodity, then USM will appeal to the Public Procurement Review Board. USM will have the burden of proving that the commodity is only provided by one (1) source.

Run Dates: 5/22, 5/29

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

The University of Southern Mississippi anticipates purchasing the item(s) listed below as a sole source purchase. Anyone objecting to this purchase shall follow the procedures outlined below.

1. Description of the commodity that USM is seeking to procure:

- **Electron Charge-to-Mass Ratio Apparatus (Qty: 1)**  
A complete apparatus for measuring the charge-to-mass ratio ( $e/m$ ) of the electron with high accuracy. Must include dedicated Helmholtz coils to generate a uniform magnetic field, a replaceable electron beam tube, and two tunable DC power supplies — one for the accelerating voltage and one for the coil current. The system must allow students to observe the circular path of an electron beam and calculate the  $e/m$  ratio from measured beam radius, accelerating voltage, and magnetic field strength.
  
- **Photoelectric Effect System (Qty: 1)**  
A complete, self-contained system for conducting photoelectric effect experiments and determining Planck's Constant to within 5% accuracy. Must include a mercury vapor light source with selectable wavelength filters, a photoelectric effect apparatus with a metal photocathode, a tunable DC power supply for applying stopping voltage, and a high-sensitivity DC current amplifier for detecting the photocurrent. The system must allow students to measure stopping voltage as a function of light frequency and calculate Planck's Constant from the resulting graph.
  
- **Educational Spectrophotometer System (Qty: 4)**  
A complete spectrophotometer system for teaching optical principles and performing quantitative light intensity measurements. Must include a 60 cm optical bench, a rotating spectrophotometer table with angular measurement capability (via a compatible rotary motion sensor), a high-sensitivity light sensor with selectable measurement ranges, an aperture bracket for controlling spatial resolution of the light sensor, and a spectrophotometer accessory set. The system must be compatible with computer-based data acquisition software for real-time data collection and analysis.

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

- **Open Speaker (Qty: 4)**  
A full-range speaker (minimum 13 cm woofer) mounted on a stable base with standard banana jack inputs. Must be designed without an enclosure or speaker cabinet so that air resonance around the rear of the speaker cone is eliminated, making it suitable for acoustic resonance experiments. Intended for use in driving standing waves in resonance tubes and other wave demonstrations.
  
- **Mass and Hanger Set (Qty: 4)**  
A complete set of calibrated masses and hangers for use in mechanics and force experiments. Must include a minimum of 4 hangers and 27 individual weights with values ranging from 0.5 g to 100 g. Masses must be cylindrical in shape, and hangers must include a notched handle for easy attachment with thread or string.
  
- **Optical Bench / Optics Track, 1.2 m (Qty: 4)**  
A 1.2-meter precision optical rail (optics bench) for use in geometric optics, diffraction, interference, and inverse-square law experiments. Must be compatible with modular optics component holders and carriers that can be positioned and locked along the track. Suitable for use with lenses, mirrors, lasers, light sensors, and diffraction accessories.
  
- **Ray Optics Kit (Qty: 4)**  
A set of optical components for studying ray optics, including lenses and mirrors of varying focal lengths and shapes. Must be compatible with a ray box or similar light source and suitable for exploring reflection, refraction, image formation, and color mixing on a flat surface.
  
- **Green Diode Laser (Qty: 4)**  
A green-wavelength diode laser designed for use with a modular optics system. Must be mountable on a standard optics track or bench and suitable for alignment with slits, diffraction gratings, mirrors, and lenses. Intended for use in interference and diffraction experiments.

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

- **Brewster's Angle Accessory (Qty: 4)**  
An accessory for use with an educational spectrophotometer system to measure the intensity of reflected polarized light and determine Brewster's Angle experimentally. Must include an acrylic semicircular lens for reflecting a laser beam (650 nm wavelength), a polarizer, and mounting hardware compatible with a rotating spectrophotometer table and rotary motion sensor. Results must allow students to calculate the index of refraction of the acrylic from the measured Brewster's Angle.
  
- **Optics Viewing Screen (Qty: 4)**  
A white viewing screen for projecting and observing optical images in lens and mirror experiments. Must be mountable on a standard 1.2 m optics track or dynamics track and compatible with a modular optics bench system.
  
- **Geometric Lens Set (Qty: 4)**  
A set of at least two converging (convex) lenses with focal lengths of +100 mm and +200 mm, each mounted in a protective holder. Must be compatible with a standard modular optics bench system for use in image formation and geometric optics experiments.
  
- **Concave/Convex Mirror (Qty: 4)**  
A double-sided optical mirror with a concave surface on one face and a convex surface on the other, accompanied by a semicircular half-screen. All components must be mounted in a holder compatible with a standard optics bench or track system for use in reflection and image formation experiments.
  
- **Conductive Ink Pen, Microtip (Qty: 1)**  
A disposable microtip pen containing silver conductive ink for use with conductive paper in electric field mapping experiments. Must have an ink resistivity of 50 to 125  $\mu\Omega\cdot\text{cm}$ , producing an insignificant voltage drop across drawn lines when used with conductive paper (resistivity approximately 5,000  $\Omega/\text{square}$ ). Must yield a minimum of 200 feet of continuous line.

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

- **Universal Data Acquisition Interface (Qty: 2)**  
A high-performance, multi-channel laboratory data acquisition interface for use with computer-based science experiments. Must support connection of multiple sensors simultaneously, provide high sampling rates suitable for a wide range of physics experiments, and be compatible with standard educational data collection software. Must serve as the central hub for connecting sensors to a computer for real-time data acquisition and analysis.
  
- **Adjustable Angle Clamp (Qty: 3)**  
A laboratory clamp designed to join two rods and lock them at any angle relative to one another, including parallel. Must be suitable for constructing and adjusting custom laboratory apparatus configurations using standard lab rods.
  
- **Polarization Analyzer (Qty: 3)**  
An optical polarization analyzer for use on a standard optics bench. Must allow students to investigate the polarization of light and measure the relationship between transmitted light intensity and the angle between two polarizers (Malus's Law). Must be compatible with a rotary motion sensor for continuous angular measurement and a light sensor for intensity data collection.
  
- **Ray Table (Qty: 3)**  
A rotating ray table featuring a polar coordinate grid for measuring angles of incident, reflected, and refracted light rays. Must include an acrylic cylindrical (D-shaped) lens and a slot for mounting an optional polarizer. Must feature a two-piece construction allowing the table surface to be rotated independently to change the angle of incidence, and must be compatible with a standard optics bench system.
  
- **String Vibrator (Qty: 3)**  
An electrically driven string vibrator for producing standing waves in strings or elastic cords. Must operate without motors or speakers (electromagnetically driven) and include mounting features for both horizontal and vertical configurations using standard lab rods, as well as recessed surfaces for direct table mounting. Suitable for experiments investigating wave speed, frequency, wavelength, amplitude, interference, and resonance.

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

- **Resonance Tube (Qty: 3)**  
A variable-length resonance tube consisting of two nested tubes that allow students to adjust the length of an air column. Must support both open and closed tube configurations for studying acoustic resonance and standing sound waves. Intended for use with an external speaker or tuning fork as a sound source.
  
- **Supplementary Lens Set (Qty: 3)**  
A set of at least two lenses — one converging (+250 mm focal length) and one diverging (-150 mm focal length) — mounted in holders compatible with a standard modular optics bench system. Intended to expand the range of optics experiments beyond a basic lens set.
  
- **Resistor-Capacitor (RC) Circuit Kit (Qty: 10)**  
A complete, self-contained kit containing all components necessary for laboratory study of Resistor-Capacitor (RC) circuits. Must allow students to explore capacitor charging and discharging behavior, and to investigate the relationships between resistance, capacitance, voltage, and time constants experimentally.
  
- **Rotary Motion Sensor (Qty: 10)**  
A high-precision digital rotary motion sensor capable of measuring angle, angular velocity, angular acceleration, and — via a multi-step pulley — linear position, velocity, and acceleration. Must include a minimum three-step pulley with diameters of approximately 10 mm, 29 mm, and 48 mm. Must be compatible with a standard computer-based data acquisition interface and educational data collection software.
  
- **Motorized Fan Accessory for Dynamics Carts (Qty: 10)**  
A fan propulsion accessory designed to mount directly onto standard dynamics carts and provide a controllable, constant propulsive force. Must be compatible with computer-based data acquisition and control software, allowing thrust level to be adjusted programmatically. Suitable for experiments involving Newton's Laws, constant force acceleration, and momentum.

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

- **Diffraction Optics Kit (Qty: 4)**  
A kit for studying single-slit and double-slit diffraction and interference of light. Must include a red diode laser light source and a precision slit wheel or set of slits with multiple slit widths and spacings. Intended for use on a standard optics track or bench to allow quantitative measurement of diffraction and interference patterns.
  
- **Aperture Bracket (Qty: 4)**  
An adjustable aperture bracket for use on a standard optics bench, designed to control the amount of light reaching a light sensor. Must provide a minimum of six selectable aperture sizes ranging from 0.1 mm to 1.5 mm. Suitable for use in diffraction, interference, and spectrophotometry experiments.
  
- **Linear Translator (Qty: 4)**  
A precision linear translation stage for use on a standard optics bench, designed to move a light sensor or other component smoothly along the optical axis. Must be compatible with a rotary motion sensor to provide precise, computer-readable position data. Intended for scanning diffraction and interference patterns with a light sensor.
  
- **Optics Carriages for Dynamics Track, Set of 4 (Qty: 3 sets)**  
A set of four carriages designed to mount optical components onto a standard dynamics track, enabling the track to function as an optical bench. Must be compatible with standard dynamics track rail dimensions and with modular optics bench components.
  
- **High-Sensitivity Light Sensor (Qty: 7)**  
A high-resolution, wide-range light intensity sensor for measuring visible light in physics experiments. Must provide a minimum of three selectable measurement ranges to accommodate low-light applications (such as diffraction pattern scanning) through high-intensity applications (such as inverse square law studies). Must be compatible with a standard computer-based data acquisition interface and educational data collection software.

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

2. What efforts were made by the Agency to determine that the proposed provider is the only entity that can provide the commodity needed?
  - Arbor Scientific, Ward's Science, and Vernier were compared with Pasco Scientific but Arbor Scientific and Ward's Science don't have data acquisition systems and the cost to get complete new data acquisition systems through Vernier would cost more than just buying the Pasco Scientific equipment add-ons since the labs already have Pasco Scientific data acquisition systems and all current equipment wouldn't work with the Vernier systems.
3. What efforts were made to ensure the best possible price for the commodity was obtained?
  - Other companies were contacted, but these other companies cannot offer the add-ons that are needed. The cost of refurbishing the labs with a different company's equipment would cost more than buying equipment from Pasco Scientific to expand the current lab capacities.
4. Why is the commodity the only one that can meet the needs to the Agency?
  - The labs already have Pasco Scientific equipment, and this purchase is to expand the lab capacities. Much more equipment from a different company would be required to reach the new lab capacities that this purchase will reach.
5. Why is the amount expended for the commodity reasonable?
  - This equipment will double the lab capacities of the Modern Physics I and Optics labs since there has been an increase of physics major enrollment. Before purchasing this equipment, one section of Modern Physics I lab as well as one

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

section of Optics lab could each have 8 students and two sections of either could get the total to 16 students. Any number of students over 16 without purchasing this equipment would create a scheduling issue. With the equipment, two labs with 16 student capacities can get the total capacity of each lab up to 32 which should be enough until equipment needs to be replaced. This new equipment could require less Teaching Assistant help because less sections may possibly be needed. Over time this will save money.

**The University of Southern Mississippi**  
**Notice of Proposed Sole Source Purchase**  
**SSP 26\_026**

<b>Advertisement Schedule</b>	<b>Date</b>
<b>1<sup>st</sup> scheduled</b>	<b>5/22/26</b>
<b>2<sup>nd</sup> scheduled</b>	<b>5/29/26</b>

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Jacob Cochran

Director of Procurement & Contracts

Jacob.Cochran@usm.edu

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