

Kevin R. Covey

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Background

Education

2006 **PhD, Astronomy**, *University of Washington*, Seattle, WA

Thesis: Dynamical Properties of Embedded Protostars & the Luminosity Function of the Galactic Disk

advisors: Professor Suzanne Hawley & Dr. Thomas Greene

2000 **BA, Physics**, *Carleton College*, Northfield, MN

honors: Magna Cum Laude

Employment

2024- **Professor**, *Dept. of Physics & Astronomy, Western Washington University*

2018-2024 **Assoc. Professor**, *Dept. of Physics & Astronomy, Western Washington University*

2014-2018 **Asst. Professor**, *Dept. of Physics & Astronomy, Western Washington University*

2012-2014 **Asst. Astronomer**, *Lowell Observatory*

2009-2012 **NASA Hubble Fellow**, *Cornell University*

2006-2009 **NASA Spitzer Fellow**, *Harvard-Smithsonian Center for Astrophysics*

Honors

2020 **SDSS-IV Architect**

2015-2018 **Time Domain Astrophysics Scialog Fellow**, *Research Corporation*

2014 **NSF Faculty Early Career Development (CAREER) Award**

2012 **Namesake for Main-belt Asteroid 142759 Covey (2002 TQ358)**

2008 **Certificate of Excellence for Distinguished Personal Initiative on Diversity in Astronomy**, *National Society of Black Physicists*

2003-2006 **NASA Graduate Student Research Program Fellow**

2000 **Distinction in the Major**, *Physics & Astronomy Dept.*, Carleton College

Grant Funding

2022 **co-PI, \$58.8K to WWU**, \$227k to 5 partner institutions; *Murdock RAISE Program*
Characterizing the Tidal Disruption of Inner Galaxy Globular Clusters

2021 **co-PI, \$5K**, *LSSTC Enabling Science Award*

Translating a TESS-Tested Eclipsing Binary Preclassifier to LSST: Testing Detection Efficiencies with the PLAsTiCC Dataset

2018 **US Cost PI, \$38.5K**, *Chandra Cycle 20 General Observer Grant*

[w/ PI Stelzer] Spin-Down, Dynamos, and Habitability: Chandra/K2 Exploration of Nearby M Dwarfs

- 2017 **co-PI, \$33.3K**, *Research Corporation Scialog Award*
Stellar Multiplicity Meets Stellar Evolution: The APOGEE View
- 2014 **PI, \$631K**, *NSF CAREER Program*
A Systematic Kinematic Survey of Young Milky Way Clusters
- 2014 **co-PI, \$45K**, *NSF Astronomy & Astrophysics Grant Program*
Collaborative Research: Variable Circumstellar Disks: Prevalance, Timescales, & Physical Mechanisms
- 2012 **PI, \$32.7K**, *Mt. Cuba Astronomical Foundation*
Increasing the Efficiency and Science Return of the Discovery Channel Telescope's Large Monolithic Imager with ugrizY Filters
- 2012 **PI, \$5.2K**, *American Astronomical Society Small Research Grant*
Supporting Undergraduate Research at Lowell Observatory: Computing Resources for Studying Star & Planet Formation
- 2010 **PI, \$39K**, *Chandra General Observer Grant*
Measuring X-ray Heating of Circumstellar Disks: Stellar X-ray Flares With Mid-IR Disk Afterglows
- 2009 **PI, \$245K**, *Hubble Fellowship Program*
A Comprehensive Survey for Gas Giants Around Young Stars
- 2006 **PI, \$235K**, *Spitzer Fellowship Program*
The Spitzer Spectroscopic Star Formation Survey
- 2005 **Co-I, \$21K**, *President's Diversity Appraisal Implementation Fund, U. Washington*
The Pre-Major in Astronomy Program (Pre-MAP): Increasing Participation By Underrepresented Students
- 2003 **PI, \$75K**, *NASA Graduate Student Researchers Program*
Determining the Physical Properties of Highly Embedded Actively Accreting Protostars and Proto-Brown Dwarfs

Teaching Experience

- Spring **PHYS 486**, *Computational Physics*
2016-2019, Introduction to scientific computing; applications to physical systems
2022, 2024 Enrollment: 16 (2024), 15 (2022), 22 (2019), 17 (2018), 21 (2017), 14 (2016)
- Winter **ASTR 316**, *Stars & Galaxies*
2015-2019, Survey of the properties, structure and evolution of stars and the Milky Way
2024 Enrollment: 19 (2024), 30 (2019), 23 (2018), 21 (2017), 31 (2016), 33 (2015)
- Fall **PHYS 161**, *Physics with Calculus I*
2014-2017, Introductory mechanics course for science & engineering majors
Winter 2023 Enrollment: 60 (2023), 54 (2017), 60+60 (two sections, 2016), 60 (2015), 58 (2014)
- Winter **PHYS 368**, *Electromagnetism I*
2019-2020, Intermediate E&M: Static electric and magnetic fields; boundary-value problems; Lorentz force;
2022 polarization and magnetization in materials.
Enrollment: 21 (2022), 24 (2020); 16 (2019)
- Fall 2021 **PHYS 102**, *Physics & Contemporary Issues*
Survey of human energy needs, generation technologies, and economic & environmental impacts
Enrollment: 11 (2021)

- Spring 2020 **PHYS 322, *Electronics***
 Lab based electronics course: Resistance; capacitance; high- and low-pass filters; diodes; op-amps
 Enrollment: 17 (2020)
- Fall 2018-2019 **PHYS 163, *Physics with Calculus III***
 Rotation, oscillations, waves and optics course for science & engineering majors
 Enrollment: 54+41 (2019), 57 (2018)
- Spring 2015, 2018 & Fall 2015 **ASTR 103, *Introduction to Astronomy***
 Survey of modern astrophysics: light, the Sun, stars, the Milky Way, and cosmology
 Enrollment: 145 (Spring 2018), 136 (Fall 2015), 126 (Spring 2015)
- Spring 2011 **Physics 118, *Electricity and Magnetism*, Ithaca College**
 [Co-Instructor w/ Prof. Luke Keller]
 Sophomore-level Electricity and Magnetism course for science majors
 Enrollment: 46 students

Service

Profession

- 2006- **Peer Reviewer**
 NSF AST AAG & CAREER Panels; NASA Origins Program; NASA IRTF TAC; Spitzer Galactic Panel;
 Spitzer Galactic Panel Chair & TAC member; Hubble Space Telescope Stellar Panel; Gemini TAC;
 ApJ, AJ & MNRAS referee
- 2019-2024 **SDSS-V MOS Survey Coordinator**
- 2016-2018 **Chair, Organizing Committee, *Northwest Astronomers Meeting***
- 2014-2020 **APOGEE-2 Special Projects Coordinator**
- 2013-2018 **Co-Chair, Star Clusters Working Group, LSST Science Collaboration**
- 2013-2016 **American Astronomical Society Institutional Agent**
- 2013-2014 **Member, Scientific Organizing Committee, *Cool Stars 18 Scientific Conference***
- 2012-2014 **Member, NASA Infrared Telescope Facility Time Allocation Committee**
- 2010-2014 **Member, AAS Committee on the Status of Minorities in Astronomy**
- 2009-2013 **co-Chair, LSST Stellar Populations Science Collaboration**
- 2007-2016 **Member, Astro Section Organizing Committee, National Society of Black Physicists**
- 2005-2006 **Co-Founder, *UW Pre-Major in Astronomy Program***
- 2002-2003 **Co-Author, *'To Feed, To Fix: Diversity and the Astronomy Pipeline at the U.W.'***

University

- 2017- **co-advisor, WWU Chapter, SACNAS (Society for the Advancement of Chicanos & Native Americans in Science)**
- 2016-2019 **Member & Finance Steward, WWU Social Justice and Equity Committee**

College

- 2018-2020 **Chair, WWU Coll. of Sci. & Eng. Equity, Inclusion & Diversity Committee**
- 2017-2018 **Member, WWU Coll. of Science & Engineering Equity, Inclusion & Diversity Comm**

2015-2017 **Member, WWU CSE Curriculum Committee**

Department

- 2022- **Chair, WWU Physics & Astronomy Dept.**
- 2021-2022 **CSE+Physics Department Faculty Ambassador**
- 2019-2020 **Member, WWU Physics & Astronomy Program Operations Committee**
- 2018-2019 **Member, WWU Physics & Astronomy Curriculum & Assessment Committee**
- 2015-2018 **Chair, WWU Physics & Astronomy Curriculum & Assessment Committee**
- 2015-2018 **Organizer, WWU Physics GRE prep. seminar**
- 2015-2017 **Organizer, PHYS 190 "Exploring Physics & Astronomy" seminar**
- 2014-2015 **Member, WWU Physics & Astronomy Curriculum & Assessment Committee**

Undergraduate students supervised

- 6/2024 - **Faith Benda, WWU**
Calculating Tidal Tails of NGC 6569 & 6558 with a Rotating Bar Potential
- 2/2024 - **Carmen Black, WWU**
Identification of Candidate Segue 3 and NGC 6569 Members via Isochrone Analysis
- 9/2023 - **Kieren Schofield, WWU**
Calculating Membership Probabilities for Segue 3 Members
- 3/2023 - **Mason Van Vleet, WWU**
Identification of Candidate Segue 3 Members & Reduction of KOSMOS follow-up spectra
- 6/2023 - **Sean McAdam, WWU**, [Poster Presenter at Nov. 2023 Murdock Science Conference]
Calculating Membership Probabilities for Candidate Tail Members With Realistic Stellar Backgrounds
- 9/2022 - 6/2024 **Kaylen Gollnick, WWU**, [Poster Presenter at Nov. 2023 Murdock Science Conference]
Simulating Tidal Tails of Globular Clusters in the Galactic Bulge
- 6/2023 - 9/2023 **Bee Tawa, WWU**
Generating Synthetic Stellar Properties for Star Particles in Tail Simulations
- 9/2022 - 2/2023 **Grace Valdez, WWU**, [First author on AAS poster]
Simulating Rubin Observatory's Yield of Eclipsing Binaries
- 6/2022 - 6/2023 **Erika Silva, WWU**, [First author on AAS poster & AAS Research note]
Segue 3's Extra-tidal Members are Rare and Hard To Detect
- 2/2022-6/2022 **Raina Shaw, WWU**, [Advisor for Honors Capstone Project]
A gendered critique and comparison of Geology and Physics
- 9/2021-6/2022 **Erin Howard, WWU**, [local advisor on project led by James Davenport (UW)]
Validating a clean sample of TESS Eclipsing Binaries
- 6/2021-6/2022 **Elliott Khilfeh, WWU**, [co-author on ApJ paper on Brackett emission signatures]
Densities and Temperatures of Accretion Streams from Brackett Line Emission in APOGEE Spectra
- 5/2021-6/2022 **Hunter Campbell, WWU**, [first author on ApJ paper on Brackett emission signatures]
Densities and Temperatures of Accretion Streams from Brackett Line Emission in APOGEE Spectra
- 6/2019-6/2021 **Anna Miller, WWU**, [first author on two EB papers]
Eclipsing Binaries in the APOGEE DR14 dataset: Photometric Analysis

- 1/2019-6/2020 **Chase Boggio**, *WWU*, [co-author on two EB papers]
Eclipsing Binaries in the APOGEE DR14 dataset: Radial Velocity Analysis
- 9/2018-9/2019 **Erin Howard**, *WWU*, [co-author on APOGEE Net paper]
Accurate Stellar Parameters For a Neural Network Analysis of APOGEE's Lower Main Sequence
- 9/2018-9/2019 **Matt Scoggins**, *WWU*, [First author on AAS Research Note; co-author on APOGEE Net paper]
Stellar Activity Cycles w/ Flare Measurements; APOGEE Neural Network
- 9/2018-6/2019 **Mitchell Yourston**, *WWU*
Rotation in Gaia Clusters
- 9/2018-3/2019 **Karla Burcham**, *WWU*
Subtraction of Photospheric Features from APOGEE Spectra of Accreting YSOs
- 9/2018-1/2019 **Sonam Choudrie**, *WWU*
Densities and Temperatures of Accretion Streams from Brackett Line Emission in APOGEE Spectra
- 7/2016-6/2018 **Richard Ballantyne**, *WWU*, [co-author on Fernandez+ Binary paper]
Densities and Temperatures of Accretion Streams from Brackett Line Emission in APOGEE Spectra
- 6/2016-6/2018 **Jacob Skinner**, *WWU*, [published results in first author paper]
Measuring Mass Ratios and Orbital Properties of M dwarf SB2s in APOGEE spectra
- 1/2016-6/2018 **Jessica Reyna**, *WWU*, [co-author on two APOGEE/SDSS papers]
Identification of double-lined spectroscopic binaries (SB2s) from APOGEE spectra
- 9/2016-6/2017 **Elle Ojala**, *WWU*
Errors in extinction laws inferred from protostars with infrared excesses due to circumstellar dust
- 6/2016-6/2017 **Emmanuel Harley**, *WWU*, [co-author on APOGEE/SDSS data release paper]
Completeness of double-lined spectroscopic binaries (SB2s) from APOGEE spectra
- 6/2016-1/2017 **Nick Saether**, *WWU*
Color anomalies induced by cool magnetic spots in stellar photospheres
- 9/2015-1/2017 **Graham Roberts**, *WWU*, [co-author on Fernandez+ Binary paper]
Identification of candidate members of the Alpha Per young Open Cluster
- 6/2015-6/2017 **Huy Nguyen**, *WWU*
Near-infrared Polarization of Outbursting Young Stellar Objects
- 6/2015-6/2017 **Martin Fernandez**, *WWU*, [published results in first author paper]
Identification & Characterization of SB2s in the IN-SYNC APOGEE dataset
- 6/2015-6/2016 **J'Neil Cottle**, *WWU*, [published results in first author paper]
Selecting a Uniform Sample of Candidate YSOs for the APOGEE-2 Survey of the Orion Star Forming Complex
- 9/2014-5/2015 **Erica Largent**, *WWU*
Measuring Rotation Periods from Kepler/K2 Light Curves of YSOs in Upper Sco
- 9/2014-5/2015 **Chloe Yugawa**, *WWU*
Identifying Candidate Transiting Planets in Kepler/K2 Light Curves of YSOs in Upper Sco
- 6/2013-1/2014 **Jessica Luna**, *Univ. of Redlands/Lowell Obs. REU student*
Stellar properties from NIR spectra of YSOs in the Ceph C star forming region
- 6/2012-6/2014 **Rachel Cooper**, *Clarion Univ./Lowell Obs. REU student*
Calibrating NIR Spectral Indices for YSOs

- 12/2009-7/2011 **Hong Yu Xiao**, *Cornell Univ*, [published results in first author paper]
Rotation Periods of T Tauri Stars from TrES light curves
- 10/2010-6/2011 **Natasha Batalha**, *Cornell Univ*, [co-author on PTF/Praesepe paper]
Serendipitous Periodic Variables in the PTF/Praesepe field
- 9/2010-6/2011 **Katherine Hamren**, *Cornell Univ*, [second author on first Cool KOIs paper]
Stellar Parameters of Kepler Objects of Interest from TripleSpec Spectra
- 5/2010-6/2011 **Chris Faesi**, *Indiana Univ./Cornell Univ. REU Student*, [published results in first author paper]
Spectral Variability of YSOs in the ρ Oph YSOVAR field
- 2/2011-6/2011 **Michele Silverstein**, *Cornell Univ*
Rotation Periods of Periodic Variables in the PTF/NGC 752 field
- 2/2010-8/2010 **Jing Yee Chee**, *Cornell Univ*
Simulating LSST's Ability to Measure Stellar Rotation Periods
- 2/2010-5/2010 **Melissa Halford**, *Cornell Univ*
Classification of Optical spectra for Bright sources in the PTF/Praesepe field
- 6/2010-8/2010 **Angie Wolfgang**, *Smithsonian Summer Intern*
Classification and characterization of X-Ray Sources from the Chandra Multiwavelength Project
- 6/2010-8/2010 **Greg Mosby**, *Smithsonian Summer Intern*
[co-mentor with Lori Allen]; stellar properties of YSOs in Orion A from Hectospec optical spectra
- 11/2007-5/2008 **Kacey Abaraoha**, *Harvard Univ*
Identification of New YSO Members of Taurus from TrES light curves and FLWO spectra
- 6/2007-8/2007 **Eric Baxter**, *Smithsonian Summer Intern*, [published results in first author paper]
Inferring the distance to NGC 2264 from the inclination of its stellar members

Graduate students advised

- 2018-2022 **Daniel Krolikowski**, *Univ. of Texas PhD Student*
[external committee member]
Membership and Binarity in the Taurus Molecular Cloud
- 2013-2018 **Alejandro Nunez**, *Columbia Univ. PhD Student*
[external committee member]
Coronal Emission from low-mass members of benchmark open clusters
- 2016-2018 **John Lurie**, *Univ. of WA PhD Student*
[external committee member]
Tidal Synchronization of Eclipsing Binaries in the Kepler Field
- 2012-2017 **Stephanie Douglas**, *Columbia Univ. PhD Student*
[external committee member]
Rotation and Chromospheric Activity in low-mass members of the Hyades & Praesepe Open Clusters
- 2014-2015 **Andrew Riddle**, *Univ. of Texas PhD Student*
[external committee member]
Stellar parameters of young, low-mass eclipsing binaries
- 2012-2014 **Sarah Smith**, *Northern Arizona Univ. Masters Student*
Calibrating Emission Lines with Near Simultaneous Accretion Luminosities

2009-2011 **Barbara Rojas-Ayala**, *Cornell Univ. PhD Student*
[committee member & secondary advisor]
Metallicity and Temperature Indicators in NIR spectra of low-mass stars

Select Invited Talks

- Apr. 2022 **SDSS-V: Status + Science Opportunities**
Second Chilean SDSS-V Collaboration Meeting, Chile (via Zoom)
- Jan. 2021 **Things Fall Apart: surveying the destruction of young Milky Way clusters with APOGEE & Gaia**
Astrophysics Seminar, Florida State Univ., Tallahassee, USA
- Nov. 2020 **SDSS-V Open Fiber Call**
Chilean SDSS-V Focus Meeting, Chile (via Zoom)
- June 2020 **Star Formation 101**
SDSS-IV/V Plenary Talk, Zoom, the internet
- Jan. 2020 **Things Fall Apart: surveying the destruction of young Milky Way clusters with APOGEE & Gaia**
Astronomy Dept. Colloquium, Univ. of Washington, Seattle, USA
- Sept. 2018 **Stellar Astrophysics with Large Scale Photometric Surveys: the post-Gaia Landscape**
ESO Workshop: A revolution in stellar physics with Gaia and large surveys, Warsaw, Poland
- Nov. 2017 **Surveying the kinematics, multiplicity, and star formation histories of low-mass stars & Milky Way clusters with APOGEE**
Astronomy Seminar, NRC Herzberg, Canada
- June 2017 **The Large Synoptic Survey Telescope: Status & Opportunities**
LSST:UK Team Meeting, Univ. of Hertfordshire, UK
- Nov. 2016 **Spots, Spins & Flares: Windows into the Evolution of Stellar Angular Momentum & Magnetic Activity**
Astronomy Dept. Colloquium, Univ. of California, Berkeley
- Nov. 2015 **Measuring Stellar Kinematics in the Youngest Clusters with APOGEE**
Astronomy Dept. Colloquium, Univ. of Washington, Seattle, USA
- May 2015 **The Future is Now: Watching Young Stars Age with Next-Gen Synoptic Surveys**
International Astronomical Union Symposium 314, Atlanta GA, USA
- Jan 2015 **The INfrared Survey of Young Nebulous Clusters (IN-SYNC): Surveying the Dynamics and Star Formation Histories of Young Clusters with APOGEE**
American Astronomical Society Special Session, Seattle, WA USA
- April 2014 **Measuring Stellar Kinematics in the Youngest Clusters with APOGEE**
Astronomy Dept. Colloquia, Univ. of California, Santa Cruz
& Univ. of Texas
- March 2013 **The Evolution of Stellar Angular Momentum From Myrs to Gyrs**
Physics & Astronomy Dept. Colloquium, Univ. of Oklahoma
- Feb. 2013 **Measuring Stellar Kinematics in the Youngest Clusters with APOGEE**
High Energy & Astrophysics Seminar, Univ. of Utah
- Feb. 2013 **The Evolution of Stellar Angular Momentum From Myrs to Gyrs**
Astronomy Dept. Colloquium, Univ. of Florida

June 2012 **The Evolution of Stellar Angular Momentum From Myrs to Gyrs**

Cool Stars 17 Splinter Session, Barcelona, Spain

April & June **Nasty, Brutish & Short: The Lives & Deaths Of Milky Way Clusters [Public Talk]**

2013 West Valley Astronomy Club, Surprise, AZ;

Oregon Museum of Science & Industry Science Pub, Hillsboro OR