CURRICULUM VITAE

Whitney L. Coyle

Assistant Professor of Physics
Department of Physics
Rollins College
wcoyle@rollins.edu

November 2018

EDUCATION

2012 - 2016	The Pennsylvania State University, Ph.D. Acoustics
2010 - 2012	The Pennsylvania State University, M.S. Acoustics
2005 - 2009	Murray State University, B.S. Music (Clarinet) and Mathematics

ACADEMIC EMPLOYMENT

August 2016 - Present	**Assistant Professor**, Rollins College
August 2015 - July 2016	**Visiting Assistant Professor**, Rollins College
August 2010 - August 2016	**Graduate Research Assistant**, The Pennsylvania State University National Science Foundation Graduate Research Fellow

GRANTS AND FELLOWSHIPS

2020-2022 **National Science Foundation RUI: Undergraduate Research in Acoustics,**
(continuation grant - in preparation)

2019-2024 **National Science Foundation Proposed S-STEM Project (pending, in review)**
"*Central Florida STARS: Supporting Transfer and Retention in STEM Through a Cohort-Based Program for Academic, Leadership, and Career Development*."
Faculty Associate (faculty mentor, *not funded*)

2017-2020 **Rollins College OER Grant**
Awarded for faculty wishing to create an open educational resource to improve student learning outcomes and reduce textbook costs.

2015-2018 **National Science Foundation RUI: Undergraduate Research in Acoustics, Grant #1607049**
Faculty Associate

2013, 2014 **National Science Foundation Graduate Research Opportunities Worldwide (GROW) Award**

2013, 2014 **French Embassy of the United States, Chateaubriand Fellowship**

2012 **National Science Foundation Graduate Research Fellowship**

2010 **Pennsylvania ARCS Fellowship** – Bennett-Coopersmith-Palmer Award

HONORS AND AWARDS

2017 Acoustical Society of America's Women in Acoustics Committee
Young Investigator Travel Award, Fall 2017 Conference, New Orleans, LA

2017 International Clarinet Association's ClarinetFest 2017 Research Competition Finalist
1st Prize, Orlando, FL

2014 Acoustical Society of America's Best Student Paper Award in Musical Acoustics
2nd Prize, Providence RI meeting

2013 Acoustical Society of America's Best Young Presenter Award in Noise
San Francisco meeting

2012 Penn State Center for Acoustics and Vibration (CAV) Student Poster Competition, 2nd Prize

PROFESSIONAL AFFILIATIONS AND SERVICES

Ad-hoc Reviewer
Journal of the Acoustical Society of America

Professional Organization Member
Acoustical Society of America (ASA)
Society of Women Engineers
American Association of Physics Teachers
American Physical Society
International Clarinet Association

Committees
Chair, Web Advisory Committee (ASA) [2016 – 2020]
Member, Women in Acoustics Committee (ASA)

Member, Education in Acoustics Committee (ASA)
Member, Musical Acoustics Technical Committee (ASA)
Member, Public Relations Committee (ASA)
Chair, Student Council (ASA) [2012-2014]
Member - ASA leadership Nomination Committee [2018]

College Board, ETS

AP Physics Exam Reader : 2017
SAT II, Physics Subject Test Committee [2017 – 2019]

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

Coyle, W.L., Gabriel, J.D.*., A method for automatic detection of articulation in clarinet playing. *J. Acoust. Soc. of America - Express Letters,* (submitted), 2018.

Coyle, W.L., P. Guillemain, J. Kergomard and J.P. Dalmont. Predicting playing frequencies for clarinets: a comparison between numerical simulations and simplified analytic formulas, *Journal of the Acoustical Society of America,* **138**, 2770-2781, 2015.

CONFERENCE PROCEEDINGS

W. Coyle, P. Guillemain, and J. Kergomard. Rapid creation of tuning maps for a clarinet using analytic formulas, *Proceedings of the International Symposium on Musical Acoustics*, pages 295–299, 2014

W. Coyle, J. Kergomard, P. Guillemain, C. Vergez, and A. Guilloteau. An attempt at predicting the variation in playing frequencies for clarinets. *Proceedings of the Stockholm Music Acoustics Conference*, pages 350–357, 2013.

OTHER PUBLICATIONS

Coyle, W.L., (2018). Using an artificial mouth to measure tuning homogeneity. (in press), The Clarinet [online, print], http://clarinet.org/.

Dent, M., **Coyle, W.L.**, (2018). Ask an Acoustician: Whitney Coyle, Acoustics Today [online, print], http://acousticstoday.org/ask-acoustician-whitney-coyle/.

CONFERENCE PRESENTATIONS

INVITED TALKS

Gabriel, J.D.*, **Coyle, W.L.**, (2019). Automatic detection of clarinet articulations. Presented at the *Acoustical Society of America* meeting, Louisville, KY.

Coyle, W.L., Moore, T.R., (2018). Using speckle imaging of air flow inside musical instruments to improve computational models. Presented at the *Acoustical Society of America* meeting, Victoria, Canada.

Moore, T.R., **Coyle, W.L.**, (2018). Flow visualizations using electronic speckle pattern interferometry. Presented at the *Acoustical Society of America* meeting, Victoria, Canada.

Coyle, W.L., Moore, T.R., (2017). Flow visualizations using electronic speckle pattern interferometry. Presented at the *Acoustical Society of America* meeting, New Orleans, LA, USA.

Coyle, W.L., (2017). Diving into the deep end: transition from student to professor. Presented at the *Acoustical Society of America* meeting, Boston, MA, USA.

Coyle, W.L., (2015). The Clarinet: past, present and future. Presented at the *Acoustical Society of America* meeting, Jacksonville, FL, USA.

Coyle, W.L., Guillemain, P., Doc, J.-B., Guilloteau, A., Vergez, C., (2014). Descriptive maps to illustrate the quality of a clarinet. Presented at the *Acoustical Society of America* meeting, Indianapolis, IN, USA.

Coyle, W.L., (2014). From musical acoustics to outdoor sound and back. Presented at the *Acoustical Society of America* meeting, Providence, RI, USA.

CONTRIBUTED TALKS

Moore, T.R., **Coyle, W.L.**, (2019). Experimental flow visualizations in an organ pipe using electronic speckle pattern interferometry. Presented at the *Acoustical Society of America* meeting, Louisville, KY.

Gabriel, J.D.*, **Coyle, W.L.**, (2018). Studying the clarinet with an artificial mouth: comparison of playing frequencies between model and measurement. Presented at the *Acoustical Society of America* meeting, Victoria, Canada.

Coyle, W.L., (2017). Using an artificial mouth to measure tuning homogeneity. Presented at the *International Clarinet Association's ClarinetFest*, Orlando, FL, USA.

Coyle, W.L., (2015). A study of the acoustical characteristics of a quality clarinet. Presented at the *International Clarinet Association's ClarinetFest*, Madrid, Spain.

Coyle, W.L., Kergomard, J., Guillemain, P., (2014). Rapid creation of tuning maps for a clarinet using analytic formulas. Presented at the *International Symposium on Musical Acoustics*, Le Mans, France.

Coyle, W.L., Kergomard, J., Guillemain, P. (2014). Clarinet playing frequency predictions: Comparison between analytic and numerical simulations. Presented at the *Acoustical Society of America* meeting, Providence, RI, USA.

Coyle, W.L., Sparrow, V.W., Ikelheimer, B., (2013). Using simplified terrain and weather mapping in outdoor sound propagation predictions. Presented at the *Acoustical Society of America* meeting, San Francisco, CA, USA.

Coyle, W.L., (2013). An attempt at predicting the variation in playing frequencies for clarinets. Presented at the *Stockholm Musical Acoustics Conference (SMAC)*, Stockholm, Sweden.

Coyle, W.L., Sparrow, V.W., Ikelheimer, B., Downing, M., James, M., Bradley, K., Mellon, J., (2011). Propagation in a realistic outdoor environment. Presented at the *Acoustical Society of America* meeting, San Diego, CA, USA.

Behrens, S.L., **Coyle, W.L.,** Goodweiller, N.P., Cottingham, J.P., (2009). Vibrational modes of accordion reeds. Presented at the *Acoustical Society of America* meeting, San Antonio, TX, USA.

Coyle, W.L., Behrens, S.L., Cottingham, J.P., (2009). Influence of accordion reed chamber geometry on reed vibration and airflow. Presented at the *Acoustical Society of America* meeting, San Antonio, TX, USA.

POSTERS

Richard, C.K.*, **Coyle, W.L.,** (2017). Velocity analysis of the vacuum-driven clarinet reed. Poster presented at the *Acoustical Society of America* meeting, Boston, MA, USA.

Coyle, W.L., Richard, C.K.*, (2017). An investigation of the reed's vibrating surface area. Poster presented at the *International Symposium on Musical Acoustics*, Montreal, Canada.

Coyle, W.L., (2012). Analytical formulas to predict clarinet playing frequencies. Poster presented at the *JJCAS*, Marseille, France.

* indicates an undergraduate student

OTHER INVITED SPEAKING ENGAGEMENTS

Coyle, W.L., (2018). Clarinet Acoustics: in search of quality markers for musical instruments. Presented at the Navy Post Graduate School, Monterey, CA, USA.

Coyle, W.L., (2016). The Flame Challenge with Alan Alda: "What is Sound" – musical sound. Presented at the *World Science Festival*, New York, NY, USA.
https://www.worldsciencefestival.com/videos/flame-challenge-what-is-sound/

STUDENTS AND ADVISING

ADVISING LOAD (AY)

- 2016-17 5
- 2017-18 23
- 2018-19 14

RESEARCH STUDENTS

- Carter Richard: 2016 – 2018
- Caitlin Richard: Summer 2016
- Jack Gabriel: 2016 – 2020
- Camille Adkisson: 2018 – 2019
- Connor Kaplan: Beginning spring 2019
- Evangelina Wong: Beginning spring 2019

GENERAL RESEARCH INTERESTS

Acoustics, Musical acoustics, physics of woodwind instruments, physics of the clarinet, outdoor sound propagation and long-range noise abatement, voice acoustics, physics education.

TEACHING EXPERIENCE

INSTRUCTOR OF RECORD AT ROLLINS COLLEGE

2018-19 Mathematical Methods I/II (PHY 220/221), Physics for Future Presidents – general-education science course (MM 200S3), Advanced Lab (PHY 232), Principles of Physics I and II Labs (PHY 130L/131L), Intersession: Introduction to MATLAB programming (PHY 295)

2017-18 Mathematical Methods I/II (PHY 220/221), Rollins College Freshman Conference Course (RCC) (Physics for Future), Physics for Future Presidents – general-education science course (MM 200S3), Advanced Lab (PHY 232), Senior Seminar (PHY 396)

2016-17 Principles of Physics I and II (PHY 130/131), Math Methods I/II (PHY 220/221), Topics in Acoustics (PHY 290)

2015-16 Principles of Physics I and II (PHY 130/131), Physics of Music (PHY 105)

TEACHING INTERESTS

Lectures: Principles of Physics I and II (calculus-based introductory mechanics, thermodynamics, waves, sound, electricity, magnetism, and geometrical optics), Physics of Musical Instruments (non-majors), Physics for Future Presidents (non-majors), mathematical physics (multivariable calculus, vector calculus linear algebra, differential

equations, probability and statistics, partial differential equations), acoustics topics, maker culture and maker spaces (non-majors).

DEPARTMENT/UNIVERSITY SERVICE

Program Coordinator, Rollins College Pre-Engineering Program [2017-2018]
Member, Faculty Advisory Committee for International Programs [2016-2018]
Faculty Advisor, Society of Physics Students [2017-2018]
Faculty Academic Advisor, 20+ students each semester
Member-at-Large, Curriculum Committee [2018-2020]

LANGUAGES

Spoken
- English – native
- French – professional fluency (DELF B2)

Programming / technical
- Microsoft office suite – advanced
- MATLAB - intermediate
- *Mathematica* – intermediate
- C++/Python - beginner
- LabView – beginner
- FEMAP – beginner
- COMSOL - beginner