

IMUN 5900: Community Engaged Approaches to Asthma Research and Education

Student Director: Jared B. Rusnak, BS

Faculty Co-Director: Sarah Henrickson, M.D./PhD, Assistant Professor of Pediatrics, Children's Hospital of Philadelphia

Faculty Co-Director: Zachary Steele, Moelis Access Science Director, Netter Center for Community Partnerships

Catalog Description: Pediatric asthma is a chronic lung disease and a significant health burden to the Philadelphia community, affecting 1 in 5 school-aged children. In this Academically Based Community Service (ABCS) course, Penn students will not only receive an introduction to the immunological and environmental causes of asthma but will also be provided with the opportunity to engage with the local community by working in small groups as co-teachers of asthma lessons in a Philadelphia middle school classroom. Penn students will receive instruction on 1) the underlying pathogenesis of asthma, 2) the efforts of local community organizations to improve asthma outcomes in vulnerable Philadelphia families, and 3) pedagogical principles. As co-teachers, Penn students will utilize problem-based learning approaches to promote education and awareness of asthma causes, symptoms and prevention in our community.

Course Description: Asthma is a multifactorial chronic inflammatory disease that represents one of the most common chronic diseases of childhood, affecting 5 million children in the United States. In Philadelphia, 17% of school aged children are living with asthma – more than double the national prevalence rate of 7% for the same age group. Asthma is a leading cause of school absenteeism and contributes to a significant number of visits to the emergency room every year. To address the harm that asthma causes to vulnerable populations in Philadelphia, this Academically Based Community Service (ABCS) course is designed to teach Penn students to make the science of asthma accessible to the Philadelphia community.

To accomplish this goal, this course is divided into 2 distinct sections:

1. **Traditional Lecture (Jan 14 – Feb 09):** This is a traditional bi-weekly, on-campus lecture series. Penn students will attend lectures on **Mondays and Wednesdays**

from 10:15am-11:45am at 3600 civic center boulevard (Room 11-104B). In these sessions, students will learn from experts in the field of immunology, medicine, environmental science, and public health on topics related to the pathogenesis and treatment of asthma. Students will also have the unique opportunity to learn from members of the local community, including reporters and community organizations, about strategies used to improve asthma outcomes in Philadelphia families. Finally, this course includes a workshop dedicated to formal instruction in middle school pedagogy – with a particular emphasis on problem-based learning approaches.

2. **Co-Teaching at Andrew Hamilton Middle School (Feb 11 – April 29):** Penn students will visit a 6th grade science classroom at The Andrew Hamilton School (5640 Spruce St) on **Wednesdays from 10:15am-11:45am.** Penn students will be assigned to work in learning teams that consist of 1-3 Penn students with 3-4 sixth graders. Please note that the final group sizes are dependent upon the number of enrolled Penn students as well as the number of 6th graders participating in this course. Learning teams will work together throughout the course. At each co-teaching session, Penn students will guide their sixth-grade teams through pre-planned lessons related to the causes, treatments, and management of asthma symptoms. During the final three co-teaching sessions, Penn students will work with their sixth-grade team to develop and present a final project (presentation, video, infographic, etc.) related to asthma, the environment and the school community. Ms. Harris and a Netter Center staff person will be present for all teaching sessions at Andrew Hamilton. Ms. Harris will be available to provide emotional support and disciplinary actions for the classroom when needed. The Netter Center will support Penn students in completing required background clearances and obtaining transportation to and from Andrew Hamilton. During this section the class will continue to meet at **3600 civic center boulevard on Mondays** from 10:15am to 11:45am to debrief on the teaching experience of the previous week, plan approaches for the following week, and attend additional guest lectures.

Course Outcomes: Upon completion of this course, Penn students should expect to have attained a broad understanding of the environmental, social and economic impacts of asthma on the Philadelphia community. Additionally, Penn students should be able to develop appropriate communication strategies to engage with the broader community about a biomedical research topic.

Learning Objectives: The following learning objective have been developed for this course:

1. Provide students with formal training in pedagogical practices relevant to early education. To enhance the science instruction provided by the standard curriculum at our partner school, Penn students will be expected to be effective educators and demonstrate communication, engagement, and self-reflection as co-teachers of their sixth-grade teams.
2. Improve understanding of building effective community advocacy efforts. It is important that students engaged in biomedical research understand the range of resources and strategies that create sustained, mutually transformative partnerships in the Philadelphia area – particularly those that aim to improve asthma outcomes in the local community.
3. Help students understand the root causes of asthma disparities in Philadelphia that contribute to the region's high pediatric asthma prevalence.
4. Deliver instruction in basic immunological and environmental science principles relevant to the treatment and pathogenesis of asthma. Penn students will deepen their understanding of the multifactorial causes of asthma, as well as the complexities associated with diagnosing and managing asthma symptoms in young children.

Grading

See page 5 for additional details

Weight	Description
60%	Classroom attendance, preparation and participation
20%	Discussion related to assigned readings
20%	Final reflection paper

Pre-Requisites: College level courses in chemistry and biology are strongly recommended but not required.

Format: This is a 1-credit course that will meet 3 hours per week for a total of 14 weeks. The course has a unique structure wherein the 4 weeks of the course meets **Mon/Wed at Room 11-104B** for a series of lectures. The remaining class periods meet **Wed at Andrew Hamilton Middle School** for co-teaching and **Mon** at **Room 11-104B**, unless otherwise noted in the schedule.

Teaching Methods: Course format includes lectures, discussions, reading reflections and co-teaching middle school students with middle school science teachers.

Course Materials: No required texts.

Students: Undergraduate and graduate students from the University of Pennsylvania. This class is ideally suited for students in STEM programs.

Background clearances AND mandated reported training are REQUIRED to work with Andrew Hamilton middle school students

Accommodations for Students with Disabilities: The University of Pennsylvania provides reasonable Accommodations to students with disabilities who have self-identified and received approval from the Office of Student Disabilities Services (SDS). If SDS has approved your request for accommodations, please make an appointment to meet with Jared Rusnak (rusnak@sas.upenn.edu) as soon as possible to discuss the arrangements for your accommodations. If you have not yet contacted Student Disabilities Services, and would like to request accommodations or have questions, you can make an appointment by calling (215) 573-9235. The office is in the Weingarten Learning Resources Center at Stouffer Commons, 3702 Spruce Street, Suite 300. Please visit the SDS website at <http://www.vpul.upenn.edu/lrc/sds/index.php>. SDS services are free and confidential.

Questions or Concerns: Jared Rusnak (rusnak@sas.upenn.edu)

Transportation: The Netter Center will provide transportation to and from Andrew Hamilton School at no cost to Penn students.

1. For most of our trips to Hamilton we will ride in a chartered bus that will pick us up at the Netter Center (3819-33 Chestnut St) at 10:10am and bring us back to the Netter Center no later than 11:45am.
2. If for some reason there is a problem with the bus on any of our travel days to Hamilton we will take public transportation. **We will use SEPTA Disposable Smart Media (DSM) passes for students, distributed for free by the Netter Center, to use on SEPTA buses (we recommend the 21 or 42 bus to get to Hamilton).**
 1. **[21 Bus](#)**: Walnut & 35th à Walnut & 57th
 2. **[42 Bus](#)**: Spruce & 34th à Spruce & 57th

Andrew Hamilton School Schedule: See the schedule below for detailed class schedule. Arrive at Andrew Hamilton School by 10:20am on teaching days. Hamilton class time will run from **10:30am – 11:30am** on these days. The final 15 minutes of class will be used for additional teaching time (if needed) and to clean up. We will leave Hamilton and arrive back by 11:45am on teaching days. Please be aware that for the co-teaching portion of the class, we are beholden to The School District of Philadelphia and Andrew Hamilton's schedule (i.e. snow days and testing days). To make up for missed school days, some lesson plans may be re-scheduled for "Lesson Prep and Review" days. Otherwise, lesson plan prep and review days will be used as office hours at our regularly scheduled classroom (**Room 11-104B**). *Attendance at these sessions is optional*

Clearances and Mandated Reporter Training: To work with minors, the state of Pennsylvania requires completion of several clearances (background checks). Additionally, all students working with School District of Philadelphia schools must complete mandated reporter training. Copies of all clearances and trainings must be shared with the Office Manager of The Netter Center, Yetunde Pinckney (myetunde@upenn.edu) prior to attending co-teaching sessions at Andrew Hamilton. A detailed description of ABCS clearance requirements can be found here: <https://www.nettercenter.upenn.edu/what-we-do/abcs-courses/clearances-abcs>

Domestic Students: The following clearances and training must be obtained before working with minors:

1. *PATCH – PA Criminal History Search
2. *PA Child Abuse Search

3. *FBI Criminal History Search
4. **Mandated Reporter Training (3hrs) – Please complete by 1/31/25

**The Netter Center provides the opportunity for students to complete clearances at no cost (see below).*

***Training must be completed on your own time*

International Students On A (F-1/J-1) Visa Who Have Not Worked In The United States:

States: Per the Department of Human Services, international students who have not worked in the United States before do not need the same three clearances as domestic students. Instead, you will sign an affidavit. Additionally, all students working with School District of Philadelphia schools must complete mandated reporter training. All documents must be on file with the University to be fully cleared.

International Students On A (F-1/J-1) Visa Who Have Worked In The United States (Including On-Campus Employment): Follow the same process as domestic students.

Obtaining Clearances via The Netter Center:

The Netter Center will be running a clearance blitz with Penn HR at the **Max Kade Center, 3401 Walnut Street, Room 329-A** on the following dates:

1. Monday, January 26th
2. Tuesday, January 27th
3. Thursday, January 29th
4. Friday, January 30th

At these sessions, students will be able to complete the required state clearances (PATCH – PA Criminal History Search and PA Child Abuse Search) in a single day and at **no cost**. You will also sign up for an Identogo fingerprinting appointment for your FBI clearance at this session. The time and location of your fingerprinting appointment will depend upon your availability and the availability of the nearby Identogo locations.

Note: The mandated reporter training must be completed on your own time. **Please complete by 1/31/26.**

Evaluation:

Weight	Description
60%	Classroom attendance, preparation and participation
	Attendance
	Guest Speaker Feedback
	Weekly Co-Teaching Reflection
20%	Required Reading Critical Reflection
20%	Final reflection paper

Class Participation and Attendance (60%): Attendance and participation is required from all enrolled students, particularly when the class transitions from bi-weekly lecture to hands-on lessons with middle school students. Students are expected to prepare for lectures by completing required readings and providing a written reflection prior to lecture. Please note that each assigned reading will require only a targeted reading approach. **An in-depth understanding of the underlying methodology is NOT required for this course** Moreover, students are expected to complete a feedback survey for each guest speaker.

- Feedback Survey: Found under the 'Quizzes' page on Canvas. Feedback must be completed by the Friday following the guest lecture (i.e. feedback for Mon 1/26 and Wed 1/28 are BOTH due by 11:59pm on Fri 1/30).

Students are expected to prepare for co-teaching sessions by reviewing provided lesson plans prior to beginning instruction with middle school class. Lesson plans will be made available on Canvas before we transition to Andrew Hamilton. Additionally, students are expected to complete a reflection assignment following each co-teaching session at Hamilton.

- Weekly Co-Teaching Reflection: Found under the ‘Quizzes’ page on Canvas. Feedback must be completed by midnight following each co-teaching week. In other words, the reflection assignment related to Mon 3/02 and Wed 3/04 is provided as one (1) quiz and is due on Friday 3/09.

If a student must miss lecture, please notify Jared Rusnak (rusnak@sas.upenn.edu), Dr. Henrickson (henricksons@chop.edu) and Zac Steele (zsteele@sas.upenn.edu). If a student must miss class during the co-teaching section of the course, it is imperative to notify both the instructors and the other Penn students in their small group. Students are responsible for completing assigned tasks by the due date despite absence. **Late assignments will be penalized 10% per late day.**

Critical Reflections (20%): Students are expected to provide a ~1 page single spaced reflection on assigned readings. This reflection should incorporate two parts: (1) A brief summary of the argument or finding developed in the reading. (2) A critical discussion of this argument or finding. ‘Critical’ does not require you to be negative, although you can if you so choose. You could also link the reading to another from the course, speculate on practical or theoretical implications of the reading, consider how you could incorporate ideas from the reading into a project you are pursuing outside of this course, analyze the structure of the reading’s argument/methodology, etc. Found under the ‘Assignments’ page on Canvas. Completed critical reflections are due the day before the associated lecture (i.e. completed by 11:59pm on Sunday for Monday lecture).

Final Reflection Paper (20%): This assignment should present the rationale for the final project of their 6th grade team. Penn students will be asked to think analytically about the feasibility of adopting their team’s plan in the real world. This includes, but is not limited to, an evaluation of the communication strategy used by their team and identification of potential stakeholders. A rubric will be provided in Canvas before final project presentations begin. **This assignment is due by 4/29/2026.**

Date	Meeting location	Class topic	Presenter(s)
1/14: Wednesday	University of Pennsylvania	Class introduction & introduction to asthma mechanics	Jared Rusnak, Dr. Henrickson, Zac Steele
1/19: Monday	MLK DAY - NO CLASS	N/A	N/A
1/21: Wednesday	University of Pennsylvania	Social determinants of health & interactive activity	Dr. Marilyn Howarth Jared Rusnak
1/26: Monday	University of Pennsylvania	Current research on the immunological mechanisms of asthma	Ceire Hay
1/28: Wednesday	University of Pennsylvania	Indoor environmental exposures and asthma risk, and Philly Home repair program, 'Built2Last'	Dr. Jessica Rice & Alon Abramson
2/02: Monday	University of Pennsylvania	Principles of community engaged research and pedagogy.	Dr. Ira Harkavy
2/04: Wednesday	University of Pennsylvania	Teaching workshop #1	Zac Steele
2/09: Monday	University of Pennsylvania	Teaching workshop #2	Zac Steele
2/11: Wednesday	Hamilton	Respiratory system function	N/A
2/16: Monday	University of Pennsylvania	School district initiatives that help support students with asthma	Dr. Kendra McDow
2/18: Wednesday	Hamilton	What is Asthma?	N/A
2/23: Monday	University of Pennsylvania	Asthma intervention and education strategies implemented by CAPP	Cali Vaughn & Brianna Hayes (CAPP)
2/25: Wednesday	Hamilton	Immune system and Asthma	N/A

3/02: Monday	Hamilton	Asthma medications	Nurse Jefferson
3/04: Wednesday	Hamilton	Indoor asthma triggers	N/A
3/09: Monday	SPRING BREAK – NO CLASS	N/A	N/A
3/11: Wednesday	SPRING BREAK – NO CLASS	N/A	N/A
3/16: Monday	University of Pennsylvania	Impact of climate change on asthma susceptibility	Dr. Jane Clougherty
3/18: Wednesday	Hamilton	Outdoor asthma triggers	N/A
3/23: Monday	Hamilton	Social determinants of health	N/A
3/25: Wednesday	Hamilton	Greenspace and asthma	N/A
3/30: Monday	University of Pennsylvania	Medication	To-be-confirmed
4/01: Wednesday	University of Pennsylvania	Air quality	To-be-confirmed
4/06: Monday	Hamilton	Public health & social change	N/A
4/08: Wednesday	Hamilton	Final project work	N/A
4/13: Monday	University of Pennsylvania	Review and final project	Jared Rusnak, Dr. Henrickson, Zac Steele
4/15: Wednesday	Hamilton	Final project work	N/A
4/20: Monday	University of Pennsylvania	Review and final project	Jared Rusnak, Dr. Henrickson, Zac Steele
4/22: Wednesday	Hamilton	Final project work	N/A
4/27: Monday	Hamilton	Final Project Presentation	N/A
4/29: Wednesday	University of Pennsylvania	Ending remarks	Jared Rusnak, Dr. Henrickson, Zac Steele