

# Luke Hebert

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## EDUCATION

### ▪ GRE: 327

Verbal: 168, Quant: 159, Writing: 4.5  
Sept 2019

### ▪ BS in Bioinformatics

Summa Cum Laude (GPA 3.822)  
May 2016, University of St. Thomas, Houston, TX  
*See transcripts for many math, chemistry, and computer science classes not listed in table.*

<b>Classes Especially Relevant to CMB Program</b>	<b>Hours</b>	<b>Grade</b>
Introduction to Cell and Molecular Biology	3	A
Genetics	3	B+
Bioinformatics Colloquium 1	1	A-
Genetics and Molecular Biology Lab	1	A
Biochemistry	3	A
Biostatistics I	4	A
Advanced Molecular Biology	1	A-
Molecular Biology	3	A-
Cell Biology	4	A
Junior/Senior Seminar	1	A
Bioinformatics	3	A
Evolution	3	A
Special Topics in Biology: Cancer Biology	3	A

## RESEARCH EXPERIENCE

### Whole Exome Sequencing Analysis (Myelomeningocele)

UTHSC Division of Pediatric Genetics under Drs. Hope Northrup and Kit-Sing Au

May 2017—July 2017

July 2018—Present

- filter, visualize, and statistically analyze whole exome sequencing data with Python & R
- read literature and write manuscript summarizing my research
- regularly collaborate with P.I. and lab members to create a bioinformatics pipeline
- present findings to DSHS Newborn Screening Unit members, UTHSC pediatric genetics grand rounds, and International Neural Tube Defects Conference

### Grant Data Gathering

June 2015—Aug 2015

Baylor College of Medicine under Smith Clinic Radiation Oncologist Michelle Ludwig, MD., PhD.

- statistically summarize breast cancer patient population's risk for heart disease using 200 patient charts
- help write grant proposal
- participate in Baylor College of Medicine's Summer Medical and Research Training (SMART) program

### Drosophila melanogaster & Toxicology

May 2013—May 2016

University of St. Thomas under biology department-chair Rosemarie Rosell, PhD.

- delegate tasks and help design experiment
- present poster at symposiums
- expose flies to gaseous toluene, calibrate system, mate flies, general fly maintenance

## PUBLICATIONS

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- 511 Human Exomes Reveal which WNT Signaling Genes May Associate with Myelomeningocele. **Luke Hebert**, Paul Hillman, Craig Baker, Michael Brown, Allison Ashley-Koch, James Hixson, Alanna C. Morrison, Hope Northrup, Kit Sing Au. *In progress, view here:* [https://www.dropbox.com/s/i1rqbprbfkda9h/wnt\\_textAndFigs\\_20191118.pdf?dl=0](https://www.dropbox.com/s/i1rqbprbfkda9h/wnt_textAndFigs_20191118.pdf?dl=0)
- Identification of Novel Candidate Risk Genes for Myelomeningocele within the Glucose Homeostasis/Oxidative Stress and Folate/One-Carbon Metabolism Networks. Paul Hillman MD/PhD\*, Craig Baker MD\*, **Luke Hebert** BS, Michael Brown MS, James Hixson PhD, Allison Ashley-Koch PhD, Alanna C. Morrison PhD, Hope Northrup MD, Kit Sing Au PhD, \*equal contribution. *In progress.*

## SELECTED PRESENTATIONS

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- 511 Human Exomes Reveal which WNT Signaling Genes May Associate with Myelomeningocele. **Luke Hebert** (BS), Paul Hillman (MD, PhD), Craig Baker (MD), Michael Brown (MS), James Hixson (PhD), Alanna C. Morrison (PhD), Hope Northrup (MD), Kit-Sing Au (PhD). 2019 International Neural Tube Defects Conference. Boston, MA. September 16<sup>th</sup>, 2019.
- High Planar Cell Polarity Gene Variant Allele Frequency in Patients with Myelomeningocele. **Luke Hebert** (BS), Hope Northrup (MD), Kit-Sing Au (PhD). UTHSC Division of Pediatric Genetics Grand Rounds, Houston, TX. July 19<sup>th</sup>, 2017.
- High Planar Cell Polarity Gene Variant Allele Frequency in Patients with Myelomeningocele. **Luke Hebert**, Hope Northrup (MD), Kit-Sing Au (PhD). DSHS Newborn Screening Unit Presentation, Austin, TX. July 19<sup>th</sup>, 2017.
- Determining the Correlation between Toluene Exposure on *Drosophila melanogaster* and the Resulting Toxicity Effects of Toluene on Fly Offspring Morphology. Duong G, Dao C, **Hebert L**, Fisher K, Reinhardt H, Lam Q, Trivino V, LeDesma E and Rosell RC. Entomological Society of America National Meeting, Portland, OR. Nov 11<sup>th</sup>-15<sup>th</sup>, 2014. (Poster won second place in President's prize competition, Undergraduate Physiology Section.)
- Determining the Lethal Concentration (LC<sub>50</sub>) of toluene on *Drosophila melanogaster* and the morphological effects on its offspring. Duong G, Knippa Z, Skeen-Esterheld H, Dao C, **Hebert L**, Fisher K, Ton M, LeDesma E and Rosell RC. Entomological Society of America National Meeting, Austin, TX. Nov 10-13, 2013. (Poster won first place in President's prize competition, Undergraduate Physiology Section.)

## PROGRAMMING PROFICIENCIES

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### Github

- <https://github.com/LukeHebert>

### Python

- versions: 2.7, 3.6, 3.7
- packages/modules: pandas, matplotlib, numpy (among others)
- associated software: PyMOL

### R

- version 3.4.4
- packages/libraries: DESeq2

## WORK EXPERIENCE

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**Research Assistant 1** July 2018—Present

*University of Texas Health Science Center's  
McGovern Medical School, Division of Pediatric Genetics*

- filter, visualize, and apply statistical analyses to whole exome sequencing and RNA sequencing data by coding in Python and R
- personally investigate which Wnt signaling genes may contribute to myelomeningocele

### **Biology Department Student Worker Part Time**

July 23<sup>rd</sup> 2014—Feb 13<sup>th</sup> 2015

*University of St. Thomas Biology Department*

- clean/stock lab supplies
- prepare for biology lab course experiments
- help take inventory and manage chemical waste

### **“Summer Scholar” Position Seasonal**

June 1<sup>st</sup>—Aug 10<sup>th</sup>, 2012

*Shangri La Botanical Gardens and Nature Center, Orange, TX*

- research local flora/fauna and present to classes open to public
- dissect and analyze local flora/fauna
- organize lessons and hands-on activities for students (grades 3<sup>rd</sup> through 8<sup>th</sup>)
- cultivate various flowering plants in the production greenhouses

### **Student Support Advisor Part Time**

Oct 25<sup>th</sup> 2012—July 23<sup>rd</sup>, 2014

*University of St. Thomas, Advising Office of Crooker Center, Houston, TX*

- assist students when scheduling classes
- present/teach UST information technology services
- general clerical duties & office maintenance (clean, keep printers filled, etc.)

## HONORS AND AWARDS

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- *Outstanding Student in Bioinformatics, 2016*  
Awarded by biology department at UST to one student
- *Summa Cum Laude (similarly: Dean’s List from 2012 fall-2016 spring)*
- *1<sup>st</sup> Place in 2013 Presidents Prize Competition at Entomological Society of America Conference*  
Presented research poster in Austin, TX
- *2<sup>nd</sup> Place in 2014 Presidents Prize Competition at Entomological Society of America Conference*  
Presented research poster in Portland, OR

## EXTRA-CURRICULAR ACTIVITIES

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### **Biological Honor Society Officer-Elect**

*Beta Beta Beta: Nu Chapter, UST*

- Events Coordinator 2013-2014
- Secretary 2014-2015

## VOLUNTEER WORK (143.5 total hours; \$700 raised)

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### **Camp Phever: phenylketonuria children**

*UTHSC McGovern Pediatric Genetics, July 7<sup>th</sup>-12<sup>th</sup> 2019*

**Houston Hospice General Volunteering** (35 hours)  
*Houston Hospice, Houston TX*

**BP MS 150 Ride** (24 hours; \$400 raised)  
*Houston to Austin, April 12<sup>th</sup>-13<sup>th</sup> 2014*

**“Camp Cardiac” Volunteer Counselor** (16 hours)  
*University of St. Thomas, Houston TX, Jul 29<sup>th</sup>-30<sup>th</sup> 2013*

**Children’s Alopecia Project Fundraising**  
(16 hours; \$300 raised)  
*University of St. Thomas, Houston TX, April 2013*

**“Zoo Boo” Volunteer** (13 hours)  
*Houston Zoo, Houston TX,*  
-Oct 21<sup>st</sup> 2012, Oct 11<sup>th</sup> 2014, Oct 25<sup>th</sup> 2014

**“Education Rainbow Challenge” Project**  
(10 hours)  
*Black Middle School, Houston TX*  
-Nov 3<sup>rd</sup> 2012  
*Davis High School, Houston TX*  
-Jan 26<sup>th</sup> 2013

**Nursing Home Card-making/Delivery** (5 hours)

*ManorCare Nursing Home, Houston TX*  
-Nov 1<sup>st</sup>, 25<sup>th</sup> 2014

**“Medical Bridges” Volunteer** (5 hours)  
*Medical Bridges, Houston TX*  
-Mar 2<sup>nd</sup> 2013, Mar 29<sup>th</sup> 2014

**Children’s Museum Volunteer** (10.5 hours)  
*Children’s Museum of Houston, Houston TX,*  
Mar 14<sup>th</sup> 2013, Oct 13<sup>th</sup> 2013, Mar 13<sup>th</sup> 2015

**Campus Recycling** (5 hours)  
*University of St. Thomas, Houston TX*  
Oct 1<sup>st</sup>, Oct 8<sup>th</sup>, Oct 11<sup>th</sup>, Nov 21<sup>st</sup> 2013

**ESA Conference** (6 hours)  
*2013 Entomological Society of America Conference,*  
*Austin TX, Nov 12<sup>th</sup> 2013*

**UST STEM Alumni Event** (6 hours)  
*University of St. Thomas, Houston TX, Oct 25<sup>th</sup> 2014*

**Harmony Science Fair** (4 hours)  
*Harmony Public School, Houston TX, Jan 24<sup>th</sup> 2014*

**Front-Desk Clerk** (4 hours)  
*Houston Food Bank, Houston TX, Aug 18<sup>th</sup> 2012*