

# NEAFS Newsletter

Volume 41, Issue 4

Winter 2016



Cover design by Keith Mancini  
Case courtesy of Dr. Roberto Schubert,  
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# Board of Directors 2016

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**President: Erica Nadeau**

Massachusetts State Police Crime Lab  
190 Carando Drive  
Springfield, MA 01104  
413-205-1847

[president@neafs.org](mailto:president@neafs.org)

**President-Elect: Beth Saucier Goodspeed**

Massachusetts State Police Crime Laboratory  
124 Acton Street  
Maynard, MA 01754  
978-451-3504

[presidenelect@neafs.org](mailto:presidenelect@neafs.org)

**Treasurer: Melissa Balogh**

PO Box 10081  
Trenton, NJ 08650

[treasurer@neafs.org](mailto:treasurer@neafs.org)

**Secretary: Tiffany Ribadeneyra**

Nassau County Office of the Medical Examiner  
2251 Hempstead Tpke. Bldg. R  
East Meadow, NY 11554-1856

[secretary@neafs.org](mailto:secretary@neafs.org)

**Director: Maria Tsocanos**

PO Box 135  
Hawthorne, NY 10532

[director1@neafs.org](mailto:director1@neafs.org)

**Director: Angela Vialotti**

Connecticut Department of Emergency Services and Public  
Protection  
278 Colony Street  
Meriden, CT 06451

[director2@neafs.org](mailto:director2@neafs.org)

**Director: Adam Hall**

[director3@neafs.org](mailto:director3@neafs.org)

# Staff 2016

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**Past President: Larry Quarino**

Cedar Crest College  
100 College Drive  
Allentown, PA 18104  
610-606-4661

[pastpresident@neafs.org](mailto:pastpresident@neafs.org)

**Executive Secretary: Matthew Marino**

500 Sea Girt Ave  
Sea Girt, NJ 08750  
845-797-8258

[executivesecretary@neafs.org](mailto:executivesecretary@neafs.org)

**Education Chairperson: John Drawec**

Western New England University  
Department of Physical & Biological Sciences  
1215 Wilbraham Road  
Springfield, MA 01119

[education@neafs.org](mailto:education@neafs.org)

**Registration Chairperson: Jessica Best**

Connecticut Department of Public Safety  
Forensic Science Laboratory  
278 Colony Street  
Meriden, CT 06451

[registration@neafs.org](mailto:registration@neafs.org)

**Membership Chairperson: Sheauling Kastor**

NEAFS  
PO Box 581  
Maynard, MA 01754  
978-451-3804

[membership@neafs.org](mailto:membership@neafs.org)

**Merchandise Chairperson: Sandra Viens**

Westchester County Toxicology Laboratory  
10 Dana Rd  
Valhalla, NY 10595

[merchandise@neafs.org](mailto:merchandise@neafs.org)

**Site Chairperson: Janine Kishbaugh**

Cedar Crest College  
100 College Drive  
Allentown, PA 18104  
610-606-4661

[sitechair@neafs.org](mailto:sitechair@neafs.org)

**Publications Chairperson: Brandi Clark**

PO Box 135  
Hawthorne, NY 10532

[publications@neafs.org](mailto:publications@neafs.org)

**Awards Chairperson: Elizabeth Duval**

Massachusetts State Police Crime Laboratory  
124 Acton Street  
Maynard, MA 01754  
978- 451-3472

[awards@neafs.org](mailto:awards@neafs.org)

**Ethics Chairperson: Andrea Belec**

[ethics@neafs.org](mailto:ethics@neafs.org)

**Corporate Liaison: Stephanie Minero**

PO Box 248  
Massapequa, NY 11758  
707-70 NEAFS

[exhibits@neafs.org](mailto:exhibits@neafs.org)

**Membership Dues Contact: Alanna Laureano**

PO Box 135  
Hawthorne, NY 10532

[dues@neafs.org](mailto:dues@neafs.org)

**Certification Chairperson: Peter Diaczuk**

Penn State University  
Forensic Science Program  
University Park, PA

[certification@neafs.org](mailto:certification@neafs.org)

**Webmaster: Keith A Mancini**

PO Box 135  
Hawthorne, NY 10532

[webmaster@neafs.org](mailto:webmaster@neafs.org)



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## President's Message

I can't believe that the year has gone by so quickly and my term as NEAFS President has come to an end. What a year it's been! I hope those of you who joined us in Atlantic City enjoyed the hustle and bustle of the Annual Meeting and the added energy and excitement Harrah's Resort brought. I can't thank everyone enough for their hard work over the past year, as well as all of the support, encouragement and guidance I received throughout my years on the Board, as a staff member and volunteer. My heart will forever be grateful for the lasting friendships I have made with many of you. I'm still young and enjoy this Organization so much, that perhaps you will see me go through the ranks again in the future! In the meantime, I am looking forward to what the 2017 Board of Directors and Staff have in store for all of us. With Beth Saucier-Goodspeed taking the lead, I am certain that her organizational skills will keep the NEAFS momentum going and bring continued recognition to us as being one of the best Forensic Science Organizations in the country.

Although it's the end of the year, there are still many opportunities for our members to take advantage of or get involved with. The 2017 Slate of Officers is posted in this newsletter with a few openings still to be filled, including Merchandise Chair and two new positions we would like to offer – Social Media Chair and Outreach Coordinator. If you or someone you know is interested please send an email to [president@neafs.org](mailto:president@neafs.org). We are also in the process of appointing an individual to a Legal Aid position to assist the Organization with questions that arise of a lawful nature throughout the year. Additionally, Lisa McFarland of the U.S. Customs and Border Protection, NY Laboratory will be taking over as Webmaster. For those of you who know our current webmaster, Keith Mancini of the Westchester County Forensic Laboratory, know that he has served in this position for as long as I have been around. He has volunteered an immeasurable amount of his time making updates to the website year after year, month after month, form after form and has done so without complaint. I know that Keith will assist Lisa along the way until her transition is complete. Thank you Keith!

During this year's Annual Meeting the Meritorious Service Award was posthumously awarded to our dear friend George W. Chin. The tribute given during the Annual Luncheon brought on a mix of emotions for many of us. It was wonderful to have George's family in attendance to accept the award on his behalf and to hear the heartfelt words of Joe Petersack, Assistant Director of the NJSP, and Vincent Desiderio's nomination letter that was submitted. The Chin family has graciously offered to provide a scholarship next year in memory of George. NEAFS is currently working with the Chin family on setting criteria for the award and more information will be posted to the website once it's available.

In September of this year, the President's Council of Advisors on Science and Technology released a report on Forensic Science in Criminal Courts to the President. NEAFS was later approached to co-sign a [response](#) generated by the Midwestern Association of Forensic Scientists. It was decided that there may be more of an impact if NEAFS wrote their own response. The Board will be working on this in the New Year and anyone who would like to provide input is encouraged to do so by emailing [president@neafs.org](mailto:president@neafs.org)

For several years now the Board of Directors has brought up the decline in membership attendance at our Annual Meetings. Each and every year the Program Chair works harder than you know in planning a meeting with a variety of technical workshops and papers and interesting

special session in hopes to entice forensic science professionals and students to attend. It's tough when you see the registration numbers and know that give or take 100 out of 500+ members attend the Annual Meeting each year. We thought that by offering free registration to those presenting a paper would create an avenue for more individuals to attend, knowing that employer funding is often unavailable. However, even with this financial assistance, we didn't see as many people benefit from this opportunity as we had hoped for. I am currently working on putting together a survey so we can solicit feedback from YOU to determine what else NEAFS may be able to do to change this trend. Keep an eye out for a blast email in the future and please take the time to respond. If you are not receiving NEAFS related emails, please update your contact information by emailing [membership@neafs.org](mailto:membership@neafs.org). With this survey, I would also like to solicit feedback on a joint meeting that is under consideration for September 2020 in Atlanta, GA with the Southern Association of Forensic Scientists. This proposed partnership would likely include SAFS, the Midwestern Association and the Southwestern Association. Knowing that several forensic science regional Organizations joined SAFS for a profitable joint meeting in 2009 and our successful joint meeting with the NEDIA in 2010, I think this is an opportunity NEAFS should consider.

One of the reason's NEAFS has continued as a successful organization is our ability to focus on our Purpose. With the exchange of ideas and information between laboratories and members of the Organization and amongst the additional non-members and students who attend our Annual meeting, we are able to stay abreast and share new technologies and advancements. With this in mind, NEAFS has been asked to help out with this year's New England Area Firearms Examiner Training Seminar. Perhaps this will provide the Organization with an additional discipline of members and allow for someone other than Peter Diaczuk to present at our Annual Meeting on firearms analysis. Although we all know how much Pete enjoys blowing things up and we sure do appreciate his enthusiasm for his work☺

The next Board of Directors Meeting will be held via GoTo Meeting on February 4<sup>th</sup>. If you have any topics for discussion, initiatives to suggest or would like to sit in on a meeting, please reach out to Beth Saucier-Goodspeed at [presidentelect@neafs.org](mailto:presidentelect@neafs.org).

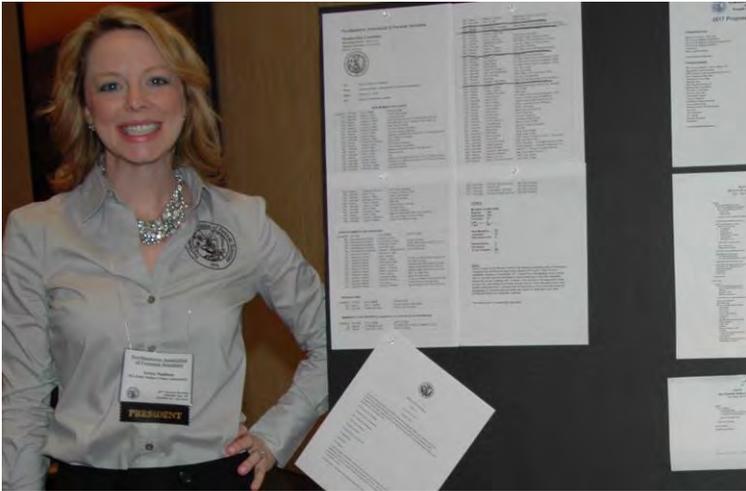
I'd like to wish everyone a safe and Happy New Year. This is only good-bye for now. Mark your calendars for November 6<sup>th</sup>-10<sup>th</sup>, 2017, as I hope to see you all at the Kalahari Resort!

Erica Nadeau

NEAFS 2016 President









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## 2017 NEAFS Board of Directors and Staff

The Nominating Committee recommended the following slate of officers to the Board of Directors and an announcement was made to the Membership at the Annual Business Meeting on October 14, 2016.

No additional nominations were received. The terms of office are January 1 through December 31.

President

Beth Saucier-Goodspeed

President-Elect/Program Chair

Melissa Balogh

Secretary

Tiffany Ribadeneyra

Treasurer

Maria Tsocanos

Directors

Angela Vialotti, Adam Hall, Sheauling Kastor

Past President

Erica Nadeau

Awards Chairperson

Elizabeth Duval

Certification Chairperson

Peter Diaczuk

Corporate Liaison

Stephanie Minero

Education Chairperson

John Drawec

Ethics Chairperson

Kevin MacLaren

Executive Secretary

Matthew Marino

Membership Chairperson

Alanna Laureano

Merchandise Chairperson

*To be filled*

Publications Chairperson

Brandi Clark

Registration Chairperson

Jessica Best

Site Chairperson

Janine Kishbaugh

Webmaster

Keith Mancini/Lisa McFarland

Additional positions for consideration to be filled: Social Media and Outreach Coordinator  
Interested individuals can send inquiries to [president@neafs.org](mailto:president@neafs.org)

# **Northeastern Association of Forensic Scientists Bylaws**

## **Article I, Organization:**

The organization shall be known as "Northeastern Association of Forensic Scientists Inc." and shall be incorporated in the state of Connecticut, and shall be referred to as the "Corporation" hereinafter.

## **Article II, Purposes:**

Section 1. To exchange ideas and information within the field of forensic science, and to foster friendship and cooperation among the various laboratory personnel.

Section 2. To encourage a high level of competency among professionals in the field of forensic science.

Section 3. To promote recognition of forensic science as an important component of the criminal justice system.

Section 4. To stimulate increased implementation of existing techniques, along with research and development of new techniques within the field, and to encourage financial support for these efforts.

## **Article III, Areas of Activity:**

Section 1. Establish and enforce a code of ethics.

Section 2. Establish a board for review, when requested, of each instance involving differences of professional opinion.

Section 3. Lend assistance, whenever possible, in the formulation of college curricula and law enforcement training programs.

Section 4. Review and act upon pending legislation which appears to be related to the field when and where possible and so requested by competent authority.

Section 5. Organize and/or sanction meetings, symposia, training and discussions to further the exchange of information.

## **Article IV, Definition of Forensic Science:**

The field of forensic science is defined as the application of the natural sciences to matters of the law.

## **Article V, Geographical Area:**

The geographical area of the Corporation is to include the States of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont.

## **Article VI, Membership:**

**Section 1.** General qualifications: Applicants for membership shall be expected to have previously demonstrated moral and ethical conduct befitting the profession. Any application may be rejected by the Membership Committee with the approval of the Board of Directors for the same reasons as termination of membership. (Article VI, Section 9)

**Section 2. Regular Members:** A Regular Member of the Corporation is one who has met the minimum established standards, has been approved by the Membership Committee, and is elected by a vote of 3/4 of the voting membership at the Annual Business meeting. A Regular Member shall be entitled to receive all publications, to a vote at business meetings, and to hold office at the time of approval. Qualifications for Regular Membership Shall Be:

- A. Hold a Doctorate, or Master's Degree, and have completed a minimum of two (2) years of experience or
- B. Hold a Baccalaureate degree and have completed a minimum of three (3) years of experience
- C. Have completed a minimum of ten (10) years of experience and be active in the field or
- D. Have, in the opinion of the Membership Committee, made such significant contributions to the field and or the Corporation to warrant Regular Membership.
- E. Experience, for purposes of Article VI, Section 2.a., is considered only in the field of forensic science:
  1. Working a minimum of fifteen (15) hours per week doing examinations and interpretation of physical evidence or,
  2. Working a minimum of fifteen (15) hours per week having done examinations and interpretation of physical evidence or,
  3. Working as a full-time professor in forensic science or criminalistics in an undergraduate or graduate program at a college or university.

**Section 3. Associate Members:** Any person who does not meet the requirement for Regular Membership may apply as an Associate Member. Such members shall be entitled to all rights and privileges of Regular Members except that they shall be ineligible to vote or hold office.

**Section 4. Life Members:** Life Members shall retain all rights and privileges of Regular Members, but shall be excused from all dues and assessments. Life Membership shall be conferred upon persons who have sustained membership for at least fifteen years including a minimum of five years as a Regular Member and, who in the opinion of the Board and the Membership, have demonstrated continued dedication to the profession and the Corporation and have made significant contributions on behalf of the Corporation. Such membership status is granted with the approval of 3/4 of the voting membership at the annual business meeting.

**Section 5. Emeritus Members:** Any Member meeting the following requirements may be proposed for Emeritus status by the Membership Committee. The member must:

- A. Be at least fifty five (55) years of age
- B. Be retired from full-time forensic work
- C. Have been a full dues paying Member of the Corporation for a minimum of ten (10) years
- D. Members holding Emeritus status shall retain all rights and privileges of Regular Members, but shall be excused from all dues and assessments.
- E. A member may apply for Emeritus status at any time by submitting a request to the Membership Chair. Those applying for Emeritus status shall be provisionally excused from all dues and assessments beginning at the time from which their request is received. If the Emeritus status of a member is not approved, the Member shall be responsible for the current years' dues, without penalty for reinstatement.
- F. Emeritus status shall be conferred by recommendation from the Membership Committee with the approval of 3/4 of the voting membership at the annual business meeting.
- G. Once Emeritus status is conferred, the Member shall be eligible to continue their Emeritus status and receive publications free of charge on an annual basis as long as they continue to meet the Emeritus requirements.

**Section 6. Student Affiliate (Student Non-Members):** Students shall be permitted to attend the Annual Meeting of the Corporation for a discounted fee to be determined by the Board of Directors. The students must:

- A. Not be a NEAFS Member or Active Applicant
- B. Not be employed in a forensic science laboratory
- C. Be enrolled at a college or university in a forensic science or related program
- D. Provide proof of enrollment

It is understood that, in connection with the implementation of this policy, the walk-in fee does not entitle students, taking advantage of it, to any meals for which others have paid. Meals are allowed at the discretion of the President Elect.

**Section 7.** Any member may apply to the Membership Committee for a change in his/her membership status. Membership shall not be transferable or assignable.

**Section 8. Fees and Dues:** Annual dues for Associate and Regular Members and application fees for membership shall be set by the Membership of the Corporation. Registration fees for Members, Associate Members, Active Applicants, Student Affiliates and Non-Members to attend the Annual Meeting shall be set by the Board of Directors.

- A. An Active Applicant is an Applicant whose completed application has been received by the Membership Committee Chairperson for consideration by the deadline set forth by the Membership Chairperson.
- B. The Board of Directors considering reports of the Treasurer; the Membership Committee

- Chairperson; the Site Chairperson; or any Member, may recommend changes in the membership fees and annual dues schedule to the Membership.
- C. Any recommended change(s) to annual dues and membership fees will be presented to the Membership for a vote at the Annual Business meeting. Changes will be effected by approval of a majority of the voting membership present at the Annual Business meeting.
  - D. There will be no charge to attend the Annual Business Meeting.
  - E. The President Elect considering reports of the Treasurer; the Membership Committee Chairperson; the Site Chairperson; or any Member, may recommend changes in the Annual Meeting registration fees to the Board of Directors.
  - F. Any recommended change(s) to registration fees will be effected by 2/3 vote of the Board of Directors.

#### Section 9. Termination of Membership.

- A. Any Member may resign his/her membership in the Corporation by written request directed to the Membership Committee Chairperson. The Board of Directors will inform the membership at the next Annual Meeting. A Member who has resigned in this manner shall be entitled to reapply to the Membership Committee for reinstatement without penalty. Such reinstatement shall be contingent upon re-election by a  $\frac{3}{4}$  vote of the voting membership at the Annual Business Meeting.
- B. Membership will be terminated at the discretion of the Board of Directors upon information supplied by the Membership Committee Chairperson that the Member has failed to pay prescribed dues or assessments by the Annual Business Meeting. A Member who has been terminated for failure to pay prescribed dues or assessments shall be entitled to reapply to the Membership Committee for reinstatement. Such reinstatement shall be contingent upon re-election by a  $\frac{3}{4}$  vote of the voting membership at the Annual Business Meeting, and payment of a penalty equal to one year of dues.
- C. A Member may be suspended or expelled from the Corporation for any violation of the NEAFS Code of Ethics, or conduct detrimental to the profession and/or the Corporation. Any person may initiate proceedings concerning unethical behavior by filing charges with the Ethics Committee in writing. Any person with membership in the Corporation may institute proceedings concerning conduct detrimental to the Corporation by filing written charges with the Ethics Committee. Any Member so charged shall be notified as soon as possible, and shall be allowed to be present during the hearing on the charges against him/her.
- D. A Member will be expelled from the Corporation following his/her conviction of a criminal offense.
- E. A Member may be expelled from the Corporation upon recommendation of the Ethics Committee or the Board of Directors, and a  $\frac{3}{4}$  vote of the Membership at the Annual Business Meeting.
- F. Penalties can be waived at the discretion of the Board of Directors in extenuating circumstances. Penalty exemptions require approval by 2/3 vote of the Board of Directors.

#### **Article VII, Officers, Board of Directors and Executive Staff Members:**

Section 1. The Officers and Board of Directors of this Corporation shall be the President, President-Elect, Secretary, Treasurer, and three (3) Directors.

Section 2. Officers: Description, Duties and Terms of Office

- A. President: Chairperson of the Board of Directors. Chief Representative of the Corporation. Shall preside over business meetings. Appoints committees, and shall execute with the Secretary all official organizational business. Empowered to sign checks. Having two votes in all Executive Staff Member elections, with the exception of if a quorum cannot be met. Term: One Year
- B. President-Elect: Shall act in place of the President in the case of temporary absence or disability of the President. Shall be Program Chairperson for the annual meeting. Empowered to sign checks. Elected by the membership. Term: One Year, after which, succeeds to the Presidency.
- C. Secretary: Keeps and publishes minutes of all Board of Directors and Membership meetings. Empowered to sign checks. Elected by the Membership. Term: Two Years.
- D. Treasurer: Receives all monies due the Corporation, and keeps accurate records of all transactions. Presents a statement twice yearly to the Board of Directors. Prepares the annual budget for presentation at the Annual Meeting, and reports the previous year's financial transactions at the annual meeting. All monies shall be deposited in a bank authorized by the Board of Directors as soon as possible and reasonable. Files the Corporation's annual taxes. Empowered to sign checks. Elected by the Membership. Term: Two Years.
- E. Directors: Help maintain information exchange within the Corporation. Elected by the Membership. Term: One Year.

Section 3. Executive Staff Members: Description, Duties, Terms of Office and Method of Selection.

- A. Awards Committee Chairperson: Review scholarship/award applications, bestow scholarships/awards to best fit applicants, and present said awards to the Board of Directors. Elected by approval of 2/3 vote of the Board of Directors. Term: One year.
- B. Certification Chairperson: Liaison between the Board of Directors and the American Board of Criminalistics and other certifying organizations. Elected by approval of 2/3 vote of the Board of Directors. Term: Three years.
- C. Corporate Liaison: Serves as the liaison between the corporate sponsors and the Corporation. Provides reports to the Board of Directors and Treasurer as needed. Elected by approval of 2/3 vote of the Board of Directors. Term: Three Years
- D. Education Committee Chairperson: Investigates, organizes and oversees educational opportunities for the Membership. Elected by approval of 2/3 vote of the Board of Directors. Term: One year.
- E. Ethics Committee Chairperson: Oversees and organizes the investigation of any ethical violations or concerns within the Corporation and its Membership. Position should be held by the most senior Past President currently serving on the committee. Term: One year.

- F. Executive Secretary: Maintains Membership files, committee reports and Corporation business. Files copies of incoming and outgoing correspondence. Serves as Chairperson of the Election Committee. Receives and tabulates all ballots regarding elections and other Corporation votes. Elected by approval of 2/3 vote of the Board of Directors. Term: One Year.
- G. Membership Committee Chairperson: Acts as Chairperson of the Membership Committee and presents recommendations to the Board of Directors and to the membership. Notifies the Membership, in advance, of the names and affiliations of applicants and Membership re-instatements to be voted on for Membership at the Annual Meeting. Notifies the Membership, in advance, of the names of Members to be terminated for unpaid dues/assessments. Elected by approval of 2/3 vote of the Board of Directors. Term: Three Years.
- H. Merchandise Chairperson: Responsible for overseeing the sales and distribution of NEAFS merchandise. Provides reports on the merchandise sales to the Board of Directors as needed. Elected by approval of 2/3 vote of the Board of Directors. Term: One Year
- I. Past President: To be filled by the immediate Past President if he/she is willing and able to serve; otherwise, to be filled by another Past President elected by approval of 2/3 vote of the Board of Directors. Serves as a Member of the Ethics Committee. Duties to be assigned by the Board of Directors. Term: One Year.
- J. Publication Chairperson: Has the responsibility of communicating to the Members those matters prescribed in the bylaws and as directed by the Board of Directors. The manner of this communication with the Members to be determined by the Board of Directors. Notifies the Membership of meetings. Elected by approval of 2/3 vote of the Board of Directors. Term: One Year.
- K. Registration Chairperson: Has the responsibility of overseeing registration for the Annual Meeting and any other events when necessary. Provides reports to the Board of Directors as needed. Elected by approval of 2/3 vote of the Board of Directors. Term: Three Years.
- L. Site Chairperson: Investigates potential sites for Annual Meetings and presents recommendations to the Board of Directors. Negotiates and signs contracts with selected hotels for the Corporation as directed by the Board. Serves as a liaison between the hotel and the Corporation during the annual meeting and coordinates and monitors all contracted hotel services. Elected by approval of 2/3 vote of the Board of Directors. Term: Three Years.

#### Section 4. Board of Directors

- A. The Board of Directors shall be composed of the officers specified in Section 1 of Article VII, and shall have the power to assign functions to each officer for the advancement of the Corporation within the purview of their duties, and that such assignments shall be reviewed by the membership at the next annual meeting, where appropriate.
- B. Shall meet at least twice each year, once being at the Annual Membership Meeting.
- C. Shall act as a Resolutions committee for the Annual Meeting, setting guidelines for the presentation of resolutions.
- D. Shall be responsible for audit of financial records, either personally, or by an outside concern, and shall present said audit to the membership.

- E. Shall present a budget to the Membership for ratification by majority of the voting membership at the Annual Meeting.
- F. Shall recommend changes in these bylaws.
- G. Vacancies on the Board of Directors to be filled by election by the remaining Board members for the remainder of the term of the vacated Board member; except that, in a Presidential vacancy, the President-Elect shall accede to the Presidency; in addition, in a Presidential-Elect vacancy, the member filling the vacancy shall not accede to the Presidency, but a special election shall be held for President at the expiration of the interim President-Elect's term.
- H. Executive Staff Member terms may be altered at the discretion of the President should vacancies on the Board of Directors permit.
- I. Other meetings of the Board of Directors will be held at the request of the President, or any three other Board members.
- J. A majority of the officers shall constitute a quorum and shall be entitled to conduct business at Board of Directors meetings.

#### Section 5.

The Board of Directors shall have full power and authority to obtain funds on behalf of the Corporation, including the power and authority to borrow money from any of the members or officers of the Corporation, and otherwise to incur indebtedness on behalf of the Corporation and to authorize the execution of promissory notes, or other evidences of indebtedness of the Corporation, and to agree to pay interest thereon, to sell, convey, alienate, assign, exchange, lease and otherwise dispose of, mortgage, pledge, hypothecate, and otherwise encumber the property, real and personal, and the franchises of the Corporation; to purchase, lease and otherwise acquire property, real and personal, on behalf of the Corporation; and generally, to do and perform every act which the Corporation may lawfully do and perform, provided that said total indebtedness of the Corporation shall not exceed the following year's anticipated income.

#### Section 6.

The Board of Directors and executive staff members of this Corporation shall serve without compensation, except their actual expenses, unless additional compensation has been budgeted and approved by the membership. The Board of Directors may authorize the Treasurer, by a 2/3 vote, to pay up to a \$5000 non-budgeted expense if it can be considered a regular expense of doing business. The Treasurer shall make such payments thus authorized by the Board of Directors, and those payments approved by the membership within the budget, or by a special vote of 2/3 of the membership. The Board of Directors shall provide a suitable seal for the Corporation. The fiscal year for the Corporation shall be January 1 through December 31.

#### Section 7.

The Board of Directors may, by vote, remove from office, for any cause, any Director who has failed to perform, in a reasonable manner, the duties of his/her office as outlined in the bylaws, or as reasonably directed by the Board. Removal is effected by a 3/4 vote of the Directors not charged, present and voting. A minimum of four votes in favor of removal must be cast. A

removal proceeding, may be initiated by any regular member of the Corporation with proper notice and an opportunity to speak and/or be represented being given to the Director so charged. Charges must be filed in writing with the President and with the Executive Secretary.

### **Article VIII, Standing Committees:**

Section 1. Awards Committee: To be composed of a Chairperson appointed by the Board of Directors. The chairperson shall appoint committee members as he/she sees fit.

Section 2. Certification Committee: To be composed of a Chairperson appointed by the Board of Directors. The chairperson shall appoint committee members as he/she sees fit.

Section 3. Corporate/Exhibit Committee: To be composed of a Chairperson appointed by the Board of Directors. The chairperson shall appoint committee members as he/she sees fit.

Section 4. Education Committee: To be composed of a Chairperson appointed by the Board of Directors. The chairperson shall appoint committee members as he/she sees fit.

Section 5. Elections Committee: Elections to be chaired by the Executive Secretary, and two others appointed by the Board of Directors.

Section 6. Ethics Committee: To be composed of three most recent Past Presidents, appointed to three-year terms, the terms to be staggered.

Section 7. Membership Committee: To be composed of a chairperson appointed by the Board of Directors. The chairperson shall appoint committee members as he/she sees fit.

Section 8. Nominations Committee: To consist of the President (the Committee Chair), the President-Elect, and three other persons not on the Board of Directors, but appointed by the Board of Directors.

Section 9. Publications Committee: To be composed of a chairperson appointed by the Board of Directors. The chairperson shall appoint committee members as he/she sees fit.

Section 10. Registration Committee: To be composed of a chairperson appointed by the Board of Directors. The chairperson shall appoint committee members as he/she sees fit.

Section 11. Resolution Committee: To consist of the Board of Directors.

### **Article IX, Special Committees:**

Special Committees may be established by the Board of Directors, their duties and power to be described.

## **Article X, Trustees:**

The Board of Directors, with the approval of 3/4 of the membership, may confer Honorary Membership and Trusteeship on celebrated individuals, who have shown themselves to be interested in the advancement of the Corporation and of forensic science, and who have endeavored to assist the Corporation in achieving its goals.

## **Article XI, Governance of Meetings:**

Meetings of the Board of Directors and of the Corporation shall be guided by Robert's Rules of Order, Revised, unless otherwise stated in these by-laws.

## **Article XII, Annual Meetings:**

The General Membership Meeting will be held annually in the fall of each year in a location to be determined by the Board of Directors. The attendance of five percent (5%) of the voting membership of the Corporation shall constitute a quorum (at the Annual Business Meeting).

## **Article XIII, Voting:**

Voting will be carried out either by mail, email or in person, and all majorities herein referred to shall mean a majority of votes cast, with the participation of five percent (5%) of the voting membership of the Corporation being a quorum.

## **Article XIV, Elections:**

### **Section 1, Nominations:**

- A. The Nominating Committee will propose a slate of officers to the Board of Directors at the Board Meeting at the annual meeting.
- B. The slate will be announced to the Membership at the Annual Business Meeting.
- C. Additional nominations can be proposed from the membership by a petition of 20 members, or 10% of the voting membership, whichever is less.
- D. Nominations must be presented to the Chair of the Nominating Committee within 30 days of the Annual Business Meeting.

### **Section 2, Elections:**

- A. If additional nominations are received by the Nominating Committee, an Election will be held by mail or email.
- B. Election will be by a plurality of the votes cast.
- C. If no additional nominations are received, the slate proposed by the Nominating Committee at the Annual Business Meeting will become effective January 1.
- D. The new officers will be announced in the first newsletter after January 1.
- E. Terms of office are January 1 through December 31.

## **Article XV, Recommended Order of Business at the Annual Meeting:**

The Order of Business at the Annual Business Meeting should include:

- A. Opening
- B. Roll call of officers
- C. Review of the Minutes of the previous meeting
- D. Reports of Standing Committees
  1. Elections Committee
  2. Ethics Committee
  3. Membership Committee and voting on new members
  4. New Business
  5. Nominations Committee
  6. Old/Unfinished business
  7. Presentation and ratification of the budget
  8. Publications Committee
  9. Ratification of the audit
  10. Report of the President
  11. Report of the Treasurer on previous year's expenditures
  12. Reports of other Committees
  13. Resolutions Committee
  14. Adjournment

## **Article XVI, Education Funds:**

Funding may be utilized to provide a scholarship for deserving students enrolled in a forensic science or a related science program at an institution of higher education located within the region served by the Corporation in accordance with the following rules and guidelines:

- A. That the scholarship may be given as frequently as once per year, but need only be given at the discretion of the Board.
- B. That the scholarship be available to full-time undergraduate students who are in their Junior or Senior year at the time of the application; and/or to graduate students who are enrolled in a part-time or full-time program at the time of the application.
- C. That the Scholarship Nominations will be solicited through the Corporation Newsletter and/or by informational mailings to Colleges and Universities within the region served by the Corporation. The solicitation period and application deadline date for this award will be determined by the Awards Committee (Article VIII, Section 1).
- D. That the Awards Committee develops specific criteria for the scholarship and publishes them along with the solicitation for nominations. The Awards Committee will rely on, but not be limited to, the applicant's academic course record, letter(s) of recommendation from an instructor or a professor familiar with the applicant's academic/research work, and a letter from the applicant describing their personal goals, achievements, and reasons for award consideration.

## **Article XVII, Amendments to the Bylaws:**

Amendments to these by-laws must be proposed in writing to the Resolution Committee at least three months prior to the annual meeting. The Resolution Committee shall publish the

amendment(s) before the meeting, and then report at the meeting that the resolution(s) has been approved, disapproved, or that no action has been taken. A 3/4 vote of the membership at the annual business meeting may over-rule the Resolutions Committee and cause a different action to be taken. The Board of Directors may also propose changes in the by-laws by mail (or email), and such changes may be effected by a 3/4 vote of the membership by mail (or email).

**Article XVIII, Dissolution of the Corporation:**

In the event of and upon the dissolution of the Corporation, the Board of Directors shall, after paying or making provision for the payments of all the liabilities of the Corporation, dispose of all of the assets of the Corporation exclusively for the purposes of the Corporation in the following manner: by equal awards to each and every accredited University and/or College in the geographical area of this Corporation which offers a degree program in forensic science. However, if it should be impossible to so dispose of these funds as stated, then the assets shall be donated to an organization whose charitable, educational or scientific purposes shall at that time qualify as an exempt organization or organizations under Section 501 (3) of the Internal Revenue Code of 1954 as the Board of Directors shall determine.





## 2016 NEAFS Meritorious Service Award George W. Chin

Several years ago, the Northeastern Association of Forensic Scientists Board of Directors created the Meritorious Service Award to acknowledge the contributions of one member on an annual basis. This award was created to recognize the extraordinary efforts that some of our members put in to ensure that NEAFS keeps pushing forward to continually achieve higher levels of greatness. The individuals that are considered for this award spend inordinate amounts of their personal time volunteering during the annual meetings, writing newsletter articles, serving on committees, and spreading the word about how great our organization is.

Having been involved in the process of creating this award, several people who embodied what it meant to be exceptional in these respects came to mind. At the top of this list was one individual in particular. This individual has been a member from the beginning. If he missed a meeting since he joined almost thirty years ago it would be a surprise. He has served NEAFS in formal roles as Site Chair, Executive Secretary, Secretary, President-Elect, and President. Counter to the actions of many who, being burned out from years of contributions fade into the background of the organization, he continued to contribute at a high level far beyond running through the Board of Directors cycle and serving his year as President. As one of the driving forces behind the Student Forum he served as a



mentor to many of our youngest members, setting a firm example and providing advice to guide them in the best direction at the start of their young careers. As a fixture at the Annual Meeting, he could often be found at the registration desk helping out and, most notably, at the door to the annual luncheon collecting tickets. In this latter respect, he probably saved NEAFS a fortune, as there was no way you were getting past him without your ticket, even if you were the President that given year.

Above and beyond NEAFS, he was a dedicated Forensic Scientist who championed his chosen discipline of Trace Evidence. Having started his career with the New Jersey State Police in 1980, he spent his entire career, all 36 years, with this same organization providing forensic services of exceptional quality on behalf of the citizens of that state. As a supervisor of their Trace Evidence Section, he was instrumental in the education and development of a cadre of up-and-coming scientists. On a personal note, his kind and generous nature endeared him to anyone that came in contact with him. He was always gathering up his group at work to spring for lunch to wish someone a happy birthday or any other occasion that provided an excuse to celebrate.

He was a perennial contributor to NEAFS, a Forensic Scientist for his state, a supervisor to some, a mentor to many, but most importantly a friend to all. It is for these reasons and many more that I would like to nominate George W. Chin for the Northeastern Association of Forensic Scientists Meritorious Service Award. And don't forget the "W".

Sincerely, Vincent J. Desiderio

## **2016 NEAFS Meritorious Service Award**

### **George W. Chin**

Forensic Scientist 3 George W. Chin passed away on September 22, 2016 at the age of 60 after a very courageous battle with cancer. At the time of his death George was a supervisor in the Trace Evidence Unit of the New Jersey State Police Office of Forensic Sciences (OFS) located in Hamilton, New Jersey. He graduated from John Jay College of Criminal Justice – City University of New York in June of 1979 with a Bachelor of Science in Forensic Science. He started his career with the New Jersey State Police Office of Forensic Sciences in March of 1980 as a Senior Laboratory Technician working in the Equine Testing Unit. He was quickly promoted to a Forensic Chemist position while working in the Toxicology Unit of the North Regional Laboratory in Little Falls, New Jersey. In 1985 he was promoted to a Senior Forensic Chemist and split time in the Toxicology and Trace Evidence Units until 1992 when he became a permanent member of the Trace Evidence unit. He worked in the Trace Evidence Unit for the last 24 years and became a Supervisor in October of 2003. He loved Trace Evidence and the work conducted in this unit on a daily basis. He received many accolades and recognitions from Prosecutors and Investigators for the exemplary work he conducted on his cases throughout his career. In 1999 he was awarded with the NJSP Office of Forensic Sciences Meritorious Service Award for his outstanding efforts in conducting forensic analyses within the laboratory. He trained and mentored many analysts at the OFS and he was a great role model that his trainees quickly tried to emulate. He had a great personality and he built long lasting relationships with the many investigators and prosecutors that had the pleasure to work with.

During his 37 year tenure at the NJSP OFS he was a staunch advocate for the field of Forensic Science especially Trace Evidence and he was very proud of his tireless devotion and involvement in several Forensic Science Organizations, specifically the North Eastern Association of Forensic Scientists (NEAFS) and the New Jersey Association of Forensic Sciences (NJAFS). He served on the NEAFS Board of Directors, several committees and was elected President of NEAFS in 1997. He was honored by NEAFS in 2013 with the distinction of “Life Member” in recognition of his many achievements and contributions to the Organization. He never missed the yearly meeting since joining as a student member in 1978 and held the longest record for continual attendance of any member. He was a founding member of the NJAFS organization in 1991 and served on the Board of Directors and several committees. He attended every yearly meeting since 1995 and in 2016 he was recognized as a “Life Member” for his many contributions. He was a charter member of the American Society of Trace Evidence Examiners (ASTEE) since its inception in 2009 and he was one of the first members of the New Jersey Homicide Investigators Association (NJHIA) in 2011. He was instrumental in helping this new organization get off the ground and provided invaluable guidance and recommendations for the information presented at their yearly conferences. Although George only became a member of the American Academy of Forensic Sciences in 2010 he had long supported the organization by attending 15 yearly meetings over the years at his own expense.

After the 9/11 tragedy George volunteered his time on weekends for 9 months to assist the New York Office of Chief Medical Examiner with the sorting and preparation of samples to be processed for DNA. His efforts helped provide closure to the families who lost loved ones during this tragic event. He was recognized for his efforts with a certificate of appreciation from the New York Office of the Chief Medical Examiner and the Superintendent of the New Jersey State Police.

George proudly represented the OFS in giving countless lectures and training sessions to the law enforcement community in New Jersey. His passion for Trace Evidence was always evident in each of these presentations that were all very well received by the many attendees.

Each year George would take on an intern at the OFS, tutor them, mentor them and present them with excellent example of kind of impact a forensic scientist has on bringing closure to the lives of those individuals who were touched by crime or violence in this state. Many an intern will never forget the lessons he taught them and the guidance he provided them during their tenure working with him.

George also volunteered his personal time to attend many local High School and Community College Career days. His presence at these events provided a young person thinking about a career in Forensic Science with all of the information necessary to make an educated decision. There are many young people who chose Forensic Science as a career after meeting and talking with George even for just a few minutes. He provided contact information and was always willing to walk them through the process to become a Forensic Scientist.

George W. Chin was an amazing individual. He was kind, generous, caring and extremely loyal. He was an avid golfer, loved the Jets and Yankees and loved his family very much. He had a passion for Forensic Science that was second to none and he shared that passion with everyone he met. He touched a lot of people during his too brief stay here on earth and he will be terribly missed not only at the OFS where he perfected his craft but by the entire Forensic Science community and all of those who knew and loved him. George Chin will never be forgotten. His legacy at the NJSP OFS and his impact on the field of forensic science will live forever.

Joseph Petersack



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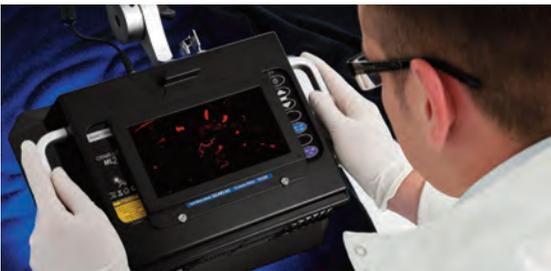


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## George W. Neighbor Jr. Memorial Scholarship – Undergraduate Winner

Olivia D. Goodwin

Olivia felt that her first forensic science poster presentation at the beginning of April might not be as good as she had hoped. It seemed no one wanted to talk to her about her research, probably because the title ("Separating Complex DNA Mixtures Containing Related Individuals Using TrueAllele® Interpretation Software") is a mouthful to say. However, she was proved wrong when she was awarded the Bayer School Award for Excellence in the Basic Sciences, becoming the first forensic science student to win that award at Duquesne University.

This achievement reinforced that she is on the right career path and that she should keep setting her personal goals to a higher standard. Olivia not only want to be actively involved in the forensic science community, but also her personal community by participating in both city and church activities. She has already started doing this by singing in the Duquesne University



Chapel Choir and St. John's Revelation Choir. Outside of school she has taken courses at the Allegheny County Medical Examiner's Office, and interned at Cybergenetics. While at Duquesne, Olivia has actively participated in Duquesne's Freshmen Orientation as a team leader, being a member, past Historian, and past Treasurer of Phi Sigma Lambda (Forensic Science and Law Professional Fraternity), and independently researching familial DNA mixtures at her University's lab facilities.

It not only took hard work to get to Olivia where she is now in her academics, but also self-discipline to balance outside activities, work, and relationships. She believes that this scholarship will add to her motivation to contribute to advancements in the field. She has dedicated her time, intellect, and personal values of honesty and integrity to forensic science in hope that she can help bring peace to victims of violence, fight against wrongful convictions, and advocate justice for those who violate both common and moral law. She is dedicated and hard-working because she loves the science that she studies, researches, and analyzes. It is so fascinating to her that evidence has the ability to tell a story if it is ascertained and analyzed both correctly and carefully. After graduation, Olivia hopes to be able to apply her knowledge of forensic science in any type of setting that she is in.

# George W. Neighbor Jr. Memorial Scholarship Award – Graduate Winner

## Courtney Mower

As a first year graduate student in the short two year Masters of Science in Forensic Science Program at Arcadia University, Courtney is continually looking ahead and picturing where she will see herself this time next year and even five years into the future. She entered the program with an interest in Forensic DNA and as she begins her Master's research project on the ancestry and authentication of shrunken heads via next generation sequencing, she can see herself working within this discipline of forensic science. Courtney is striving to present this research at the 69<sup>th</sup> Annual Scientific Meeting for the American Academy of Forensic Sciences as platform speaker in February of 2017. Additionally, she aspires to publish an article in regards to her research within a credible scientific journal. Coinciding with her decision to obtain a Master's degree in forensic science, Courtney pictured herself working for the New Jersey State Police Office of Forensic Services. She truly feels that it would be an honor to work for a laboratory serving the state in which she has lived her entire life. She applied for a summer internship at the state laboratory in an effort to gain more experience within the field and to become one step closer to reaching this goal. In the meantime, she is dedicated to maximizing her education within the classroom and laboratory to best prepare herself for a future career. Her hard work was recognized for the Fall 2015 semester, when she received Distinguished Dean's List honoring students with a GPA within the top 10% of their program. Courtney was one of two students to obtain this recognition.

Courtney seeks to assist others in their pursuit or interests in forensic science, in a similar manner as George W. Neighbor Jr. In the Fall of 2016, she will be a teaching assistant for first year students participating in the Instrumental Analysis Lab. She often looked to the teaching assistants when she took this course for advice and she is looking forward to moving into this mentor role. Recently, Courtney presented to a high school forensic science class, at her alma mater, about her experiences as a student and the path that lead her to Arcadia University. It is important to her to reach out beyond the forensic science community at Arcadia in order to educate others about this unique field.

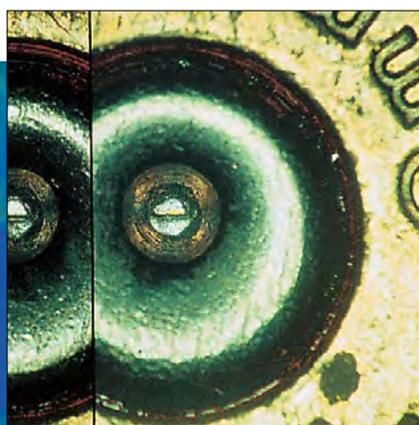


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## Carol De Forest Student Research Grant Award Winner Chandler Grant

Growing up, Chandler could never grasp the concepts she was learning in her science classes. As much as she enjoyed learning new areas of science, she just never did as well science compared to other subjects in school. It was always frustrating because she could never understand why. It wasn't until her high school genetics teacher had the class do a lab revolving around Forensic Science. That was the first time she had ever heard of the field of Forensic Science and truly became interested in science.



This excitement for the field of Forensic Science took Chandler to Cedar Crest College, where she earned her Bachelors of Science degree in Biology and Forensic Science with a minor in Chemistry. Even though her interest in Forensic Science began in high school, her interest continued to grow once at Cedar Crest College. The Forensic Science Program at Cedar Crest College provided Chandler with the opportunity to do an internship with a few forensic pathologists from Forensic Pathology Associates. The professors at Cedar Crest College along with the forensic pathologists from Forensic Pathology Associates had so much excitement for the field that it only continued to spark

hers. From there she decided to continue with her education and enrolled in the Cedar Crest College Masters of Science in Forensic Science Program.

From here, Chandler's goal is to graduate from Cedar Crest College with her Masters of Science in Forensic Science degree along with being able to publish her research. After graduation, she would like to find a career in a forensic science laboratory or even continue on to medical school to become a forensic pathologist. Because Cedar Crest College is a generalist forensic science program, Chandler has become interested in many areas of forensic science so she would be happy finding a job in any area of forensic science.

Chandler is one to challenge herself; it is how she learns best. When she is presented with a challenge, she devotes her time and energy into completing that challenge to the best of her ability. This is how she see this research project; a challenge. She wants to see this research project succeed for many reasons. One, she believes that this research project would benefit the forensic science community. Finding an easy and quick method to detect drugs that may be present in a deceased individual that is an improvement to current methods would greatly impact forensic science. Second, the success of this research project would help her grow as an individual as well as a forensic scientist. Drug chemistry and toxicology are areas of forensic science she hasn't had the opportunity to truly explore yet. Chandler is excited to challenge herself and enhance her knowledge in these areas of forensic science.

This research project can truly make a difference and is quite unique compared to current drug analysis methods used by the forensic science community. Chandler's drive to successfully complete this challenge and make an impact is the main reason why she is the recipient of the Carol De Forest Forensic Science Research Grant.

## Attachment A

### **ANALYSIS OF ILLICIT SUBSTANCES IN DECEASED INDIVIDUALS BY BIOCOMPATIBLE SOLID-PHASE MICROEXTRACTION (BIOSPME<sup>®</sup>), GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS), AND LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY (LC-MS/MS)**

Since being introduced in the early 1990's, solid-phase microextraction (SPME) has been widely used due to its simple and fast methodology for preparation and extraction. This method of extraction eliminates the need for extraction solvents (1). SPME was developed to be either used in the laboratory setting or on-site in the field. An advantage of SPME is that it is a device that is compatible with a separation/detection instrument, such as gas chromatograph/mass spectrometer and liquid chromatograph-tandem mass spectrometer (2).

There is a need for easy and fast analysis of drugs and other compounds in the field of forensic science, which could be solved with the use of a SPME device. A variety of SPME methods have been utilized to analyze drugs, such as methamphetamine (3), venlafaxine (4), and tranexamic acid (5), in different biological matrices. These methods include the use of various SPME fiber coatings, headspace-SPME (HS-SPME), direct immersion-SPME (DI-SPME), in-tube SPME, and in-vivo SPME (6).

Within recent years, the application of in-vivo SPME has become an area of interest because of the ability to directly sample human and animal biological fluids and organs in with a SPME fiber without removing any samples (6). An issue that arises when conducting in-vivo SPME analysis is macromolecules and other interferents not of interest adhere to the SPME fiber. Biocompatible SPME (BioSPME<sup>®</sup>) fibers have been created to overcome these issues (7). Figure 1 is an example of a BioSPME<sup>®</sup> pipette tippet that is produced by Supelco. At the 41<sup>st</sup> Northeastern Association of Forensic Scientists annual meeting Kaitlyn Hess presented an initial

evaluation of the BioSPME<sup>®</sup> pipette tip ~~on~~ applying it to the analysis of illicit substances in urine (8).

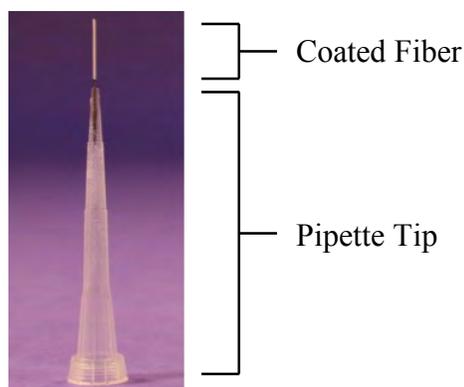


FIG. 1 – BioSPME<sup>®</sup> pipette tip *manufactured by Sigma-Aldrich (9).*

Forensic pathologists are responsible for collecting samples from deceased individuals for toxicological testing. These samples may include bile, vitreous humor, urine, blood, liver, gastric contents, brain, and kidney. The samples collected are then sent to a toxicology laboratory where they will be analyzed for common drugs or poisons and define therapeutic, toxic and fatal concentrations for drugs that may be present (10). In forensic toxicology, the current analysis of illicit substances in deceased individuals for criminal investigation is time consuming. This could be due to backlog of cases or a lengthy analysis process. With the use of BioSPME<sup>®</sup> fibers that can be directly injected into any biological matrices, the amount of time needed to analyze illicit substances within a deceased individual should decrease. The objective of this study is to optimize a method and be able to screen, identify, and quantify illicit substances that may be found in overdose victims faster than current analysis methods.

Three different types of coatings for the BioSPME<sup>®</sup> fiber will be used for this study, C18, Mixed Mode, and Polydimethylsiloxane/Divinylbenzene (PDMS/DVB), to analyze drugs of abuse found within a biological matrix. Some of the drugs that will be analyzed in the

preliminary stages of the study will be narcotic analgesics, such as 6-monoacetylmorphine (6-MAM), codeine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, and oxymorphone. GC/MS will be used as a screening method to detect the presence of drugs while LC-MS/MS will be used as a quantification method to detect the amount of drugs that may have been found in a biological matrix.

The general procedure will consist of conditioning the fibers for 15 minutes in a 50% methanol/water solution and inserting the fibers into the biological matrix to extract possible drugs for a certain amount of time. The fibers will then be removed from the biological matrix and placed into individual wells that contain 120  $\mu$ L of 0.5% ammonium hydroxide (28%)/methanol while covered and shaking at 70 rpm to allow the drugs to desorb off the fibers. The wells will then be dried at 40°C for 1 hour under a gentle stream of nitrogen then be reconstituted with 40  $\mu$ L of acetonitrile in 10% (v/v) methanol/water. Samples will be first screened for the presence of drugs using an Agilent 6890N gas chromatograph containing a 30 m x 0.22 mm x 0.2  $\mu$ m phenylmethylsiloxane capillary column that is attached to an Agilent 5973 mass spectrometer. The samples will then be analyzed quantitatively using Shimadzu LC system containing a Restek Ultra<sup>®</sup> C18 (50 mm x 2.1 mm, 3  $\mu$ m) column attached to an AB Sciex 3200 QTRAP<sup>®</sup> tandem mass spectrometer.

A feasibility study will first be conducted which will consist of testing the C-18 BioSPME<sup>®</sup> fiber to make sure the fiber works. This will consist of spiking different concentrations of a drug mixture containing 6-MAM, fentanyl, hydrocodone, morphine, and oxycodone into water and then spiking different concentrations of the same drug mixture into bovine blood. A set of fibers will be placed into the water and another set of fibers will be placed into the blood. The general extraction method will then follow with analysis by GC/MS.

The study will then shift into optimizing a method for the BioSPME<sup>®</sup> fibers to be used in a blood matrix. This will first consist of determining the best extraction time for when the drug mixture is in methanol/water and then in bovine blood. The extraction times will range from 5 minutes upto 60 minutes. The next part of optimizing the method will be to determine the pH the bovine blood needs to be at to efficiently extract drugs. Bovine blood at a pH of 3, 5, 7, 9, 10 and 12 will be tested with varying concentrations of the drug mixture. These samples will then be analyzed using GC/MS. The results are from these tests will determine what part of the general method would need to change and help create a quantitative method for LC-MS/MS.

The overall purpose of optimizing a method for the analysis of 6-MAM, codeine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, and oxymorphone in bovine blood using BioSPME<sup>®</sup> is to apply this method to autopsy case specimens. The three different coated fibers will be conditioned prior to autopsy and inserted into a biological material, whether it is brain, kidney, liver, blood, or vitreous humor. The autopsies will be conducted by the forensic pathologist at Forensic Pathology Associates. The drug will be extracted onto the fiber for the amount of time determined by the optimized method and then transported back to Cedar Crest College. The drugs will then be desorbed off the fibers at Cedar Crest College, the wells will be dried and reconstituted and analyzed using GC/MS and then LC-MS/MS. This can be a quick and easy method to detect drugs present in body fluids and organs of overdose victims with minimal sample preparation, simple extraction and desorption steps, and fast run time using LC-MS/MS.

## References

- (1) Nováková L, Vlcková H. A review of current trends and advances in modern bio-analytical methods: Chromatography and sample preparation. *Anal Chim Acta* 2009;656:8-35.
- (2) Duan C, Shen Z, Wu D, Guan Y. Recent developments in solid-phase microextraction for on-site sampling and sample preparation. *Anal Chem* 2011;30(10):1568-74.
- (3) Narapanyakul R, Tungtanawat W, Yongpanich P, Sinchai T, Thong-ra-ar N, Lawanprasert S. Comparative study of postmortem blood, urine, and vitreous humor methamphetamine. *TPJS* 2014 Mar;38(1):5-13.
- (4) Mastrogianni O, Theodoridis G, Spagou K, Violante D, Henriques T, Pouliopoulos A, Psaroulis K, Tsoukali H, Raikos N. Determination of venlafaxine in post-mortem whole blood by HS-SPME and GC-NPD. *Forensic Sci Int* 2012;215:105-9.
- (5) Bojko B, Vuckovic D, Cugjoe E, Hoque ME, Mirnaghi F, et al. Determination of tranexamic acid concentration by solid phase microextraction and liquid chromatography-tandem mass spectrometry: First step to in vivo analysis. *J Chromatogr B* 2011;879:3781-7.
- (6) Kataoka H, Saito K. Recent advances in SPME techniques in biomedical analysis. *J of Pharma and Biomed Anal* 2011;54:926-50.
- (7) Mirnaghi FS, Pawliszyn J. Reusable solid-phase microextraction coating for direct immersion whole-blood analysis and extracted blood spot sampling coupled with liquid

chromatography-tandem mass spectrometry and direct analysis in real time-tandem mass spectrometry. *Anal Chem* 2012;84:8301-9.

- (8) Hess K. Investigation into the Use of BioSPME for the Analysis of Illicity Substances in Urine. Proceedings of the 41<sup>st</sup> Northeastern Association of Forensic Scientists Annual Meeting; 2015.
- (9) SPME LC Tips. Digital image. Sigma-Aldrich. Sigma-Aldrich, n.d. Web. 10 Apr. 2016. <<http://www.sigmaaldrich.com/catalog/product/supelco/57234u?lang=en&ion=US>>
- (10) Drummer OH. Post-mortem toxicology. *Forensic Sci Int* 2007; 165:199-203.

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University of New Haven

# Carol De Forest Student Research Grant Award Winner

## Elena Zavala

Finding a connection between human rights work and forensic science has been a constant goal as Elena has looked at career paths over the past fifteen years. She first found her passion for forensic science in eighth grade when a classmate of hers did a presentation on the topic. From that moment forward, her educational path was guided by how she could find a place in this field. During her undergraduate studies, Elena also became drawn towards human rights work. While on a service trip to El Salvador the group she was with visited the organization Pro Busqueda, which used DNA analysis in order to reconnect families that had been separated during the civil war. It was her first glimpse at the possibility of combining her two areas of interest.

After receiving her bachelor degrees, Elena interned at a private forensic science laboratory doing research before joining the Peace Corps. After completing her Peace Corps service and rejoining the scientific field she found herself in a dilemma. She loved being back and working in the lab, learning about new processes and being able to participate in the development of cutting edge technology. But she missed the connections with people and applied side of her work that she had felt while in the Peace Corps. After searching on ways to combine the scientific with the human element, Elena connected with Dr. Cristian Orrego who works with Pro-Brusqueda and he introduced her to the topic of ancient and damaged DNA.



Since meeting Dr. Orrego, Elena's focus has centered on learning the current techniques used for human identification with these difficult types of samples and where there is optimization potential. She has met with several people working on related projects to understand how to best direct her education and training. It is for this reason that she decided to attend Pennsylvania State University for her masters, specifically working with Dr. Holland who has done extensive work in this area with mitochondrial DNA. The program also offers a hands-on, comprehensive training that will prepare her to work in the forensic science field.

Elena's career goals are two-fold. First, she would like to work to improve the ability of current methods to successfully identify human remains specifically with damaged and ancient DNA. She plans to pursue her PhD and hopes to use this research project as a foundation for her doctoral research, which will be centered on this area of study. Second, she would like to work for an organization that also works on the application side, increasing the capacity of communities around the world to utilize forensic science techniques, including DNA analysis.

There is a gap in human identification when it comes to obtaining identifying information from shortened nuclear DNA fragments. With the improvements in next generation sequencing technology and improved capture techniques for single stranded DNA there is an increased identification potential, but first the DNA needs to be recovered from the bones. There is not currently a DNA extraction method from bone that has been shown to effectively recover shortened fragments of nuclear DNA.

Elena believes she will be successful with this project because of the support she has already received from her advisor, from Penn State and from her committee members combined with her past experience as well as her own dedication to the research. She has worked in a research capacity in academic, forensic science and industry environments. This allows her to see the project from different angles and better understand how to meet the expectations of the different parties involved. Specifically, an optimized extraction technique has the potential to be implemented by anthropologists working outside the forensic science field as well as crime labs and international organizations, such as the International Commission on Missing Persons (ICMP). For this reason her committee for this project includes a member of the Penn State Anthropology department who works with ancient DNA and the Director of the ICMP.

## **Recovery of Highly Fragmented nDNA from Skeletal Material and Subsequent SNP-based MPS Analysis**

### **Elena Zavala**

#### Introduction, background and significance of research proposed

The identification of remains that have been discovered after an extended period of time is becoming an increasingly important part of the forensic science field. Two of the organizations that work with these types of cases are AFDIL (Armed Forces DNA Identification Laboratory), which primarily focuses on the identification of military personnel and mass disaster cases, and the ICMP (International Commission on Missing Persons), which works primarily with war crimes, disaster victim identification and mass grave sites. These types of remains have usually been exposed to the elements and tend to be older than what may be seen in a typical forensic identification case; although a significant percentage of the unidentified remains in medical examiner's offices across the county fall into this category. This extended exposure results in greater degradation of the DNA, which leads to fragmentation and damage of the pristine strands often to less than 150 base pairs. Current human identification methods use a combination of mitochondrial (mito)DNA and/or STR analysis. These techniques target segments of DNA ranging from 115 to 470bps in length. Due to the highly fragmented nature of the DNA recovered from these types of samples, identification is still not always possible with these techniques, SNP analysis is ideal for these types of samples as they target short regions of DNA (40 to 70bps). SNP's can be used for identity, and can also provide phenotypic and ancestry information that would help with human identification. Current skeletal extraction methods, however, have not been optimized to recover nuclear (n)DNA fragments that would serve as templates for SNP analysis. The recovery of these fragments and subsequent analysis using next generation sequencing with the goal of increasing capacity for human will be the focus of this project.

#### Experimental procedure

In order to establish a baseline a modeling experiment was performed using four different established protocols for extracting DNA from old, damaged bones. The first was a silica-based extraction method (Rohland et al, 2007), which was chosen as it is an older, established procedure that has been used as a baseline for other optimization studies (4, 5) and has been implemented for the extraction of nuclear and mitoDNA in ancient samples (6,11,49). The second was an improved silica method developed by Dabney et al 2013, which elevated the recovery of small fragments of mitoDNA. The third was another silica method (Yang et al 1998) that was found to be equivalent, but more cost-effective than the Dabney method in a recent three way comparison study between the Rohland, Dabney and Yang protocols (19). The final protocol is a demineralization procedure used by the ICMP (3).

To evaluate the potential for these procedures to recover highly fragmented DNA, pristine DNA was fragmented into pieces ranging from about 42bp to 500bp in length. This was accomplished by using DNA extracted from buccal swabs and shearing it with a Covaris S2. The resulting sample was made up of fragments from 35bp to 70bp (9% of the total sample), 70bp to 100bp (13% of the total sample), and 35bp to 150bp (44% of the total sample). Aliquots of 57ng-60ng were then run in triplicate on each of the four protocols. Evaluation was performed by using a Bioanalyzer 2100 on a high sensitivity chip. The results corroborated earlier studies, with the Yang and Dabney protocols resulting in the highest recovery percentages. The Dabney specifically was most successful at recovering smaller fragments of DNA.

With the next steps of the project it will be important to use starting material that that reflects what will be seen in casework. The types of remains found in missing person cases, mass graves and other humanitarian cases can span a wide range of age and degradation. This will affect the success of different recovery techniques. In order to address these variations, the remains used for this study will come from the same region (Eastern Europe) and will span three different time periods: Recent remains (30-100 years old), Middle era (300-600 years old), and "ancient" (800-1100 years old). Previous studies have shown that the teeth and femur (long bone) result in the best DNA analysis results, so these skeletal elements will be the primary source for the study. Teeth samples have also been shown to be the skeletal material least likely to become contaminated during pre-lab handling, which is critical for the accuracy of downstream results (46).

Two protocols will be evaluated with the above described samples: the Dabney and a modified ICMP protocol. As the goal for this project involves not only developing an optimized extraction protocol, but one that can be easily integrated into laboratories, it was decided to work off the ICMP protocol as a base. Two components were identified from the original ICMP protocol that would quickly increase the final yield: changing from a 100K Amicon filter to a 10K Amicon filter for the concentration step and changing from the QIAquick columns to the MinElute columns as the latter is used more for smaller fragments of DNA. See below for the actual procedures to be followed.

### *Dabney*

Bone powder (150mg) is placed in 1.2 mL of digestion buffer (0.45M EDTA pH 8.0, 0.25 mg/ml proteinase K) and incubated overnight at 37C. The sample tubes are centrifuged at 4000rpm for five minutes. At this point 0.625mL 3M sodium acetate is added to the binding buffer (5M GuHCl, 40% isopropanol, 0.05% Tween 20). The sample supernatant is then added to a 50mL tube with the binding buffer/sodium acetate and gently shaken. The vacuum manifold is prepared with MinElute columns and extension reservoirs. The sample is poured into a tube extender. The vacuum is switched on and the liquid is pulled through. After liquid is pulled through, the vacuum is switched off and the extender is removed and spin caps closed. The columns are placed in collection tubes, closed and spun at 6000rpm for one minute. The flow through was discarded and the column washed with 750uL PE buffer. The column is centrifuged for one minute at 6,000rpm, the flow through discarded and the wash repeated once. A dry spin is completed at max speed for one minute and the column is transferred to a fresh collection tube. The elution buffer (EB buffer) is added (31.25uL) and incubated for ten minutes. The column is then centrifuged for 30sec at 13,200rpm.

### *Modified ICMP*

Bone powder (150mg) is incubated in 4.5mL digestion buffer (0.5M EDTA pH 8.0, 1% N-laurylsarcosinate, 3mg Proteinase k) overnight at 56C. This results in a completely digested bone sample. The extract is then centrifuged for five minutes at 1800g and concentrated to about 300uL with an amicon filter 10K. The concentrated lysate is then mixed with five volumes of PB buffer, vortexed and transferred to a MinElute column. The column is centrifuged and the membrane is washed three times with 750uL PE. Elution is performed by adding 50uL of preheated EB buffer (60C) to the column and incubating the column at 37C for thirty minutes. The column is then centrifuged for 30 sec at 13,200rpm.

From comparing these two protocols there are several differences, including the starting incubation temperature, digestion buffer make-up and final elution steps that can be immediately identified. The initial goal will be to identify a well performing protocol and then identifying components within the protocol that can be optimized by isolating singular variables. For example, the concentration of proteinase K or EDTA in the initial starting buffer may be titrated to three or four different amounts and run in order to observe the effects of these changes on the system. The success of these changes on different types of samples will also be noted.

Following extraction the success of these protocols will be evaluated for fragment length and yield. A qPCR assay will be employed to assess both recovery levels and quality of the recovered DNA. The primers used for this part of the project will be contributed in part by Promega. Both nDNA and mitoDNA will be targeted, the mitoDNA will work as a control as it is found in higher quantities than nDNA. The Quantifiler human quantification kit will be used first to determine if it is suitable for the initial analysis, and performed on the 7500 real-time PCR system. If the nDNA quantification approach is unsuccessful, the QuBit kit will be used post-PCR to quantify the amount of amplicon from in-house mito and nDNA targets. Fragment length will be evaluated by running the amplicons on an agarose gel.

Upon successful amplification of the small fragments, MPS will be performed using the MiSeq Forensic Genomics System using their SNP panels; identity-informative SNPs, phenotypic-informative SNPs and biogeographical ancestry-informative SNPs. MiniSTRs may also be analyzed as they are helpful in bridging the gap between SNP and STR analysis (45). STR analysis can also be run in parallel to SNP analysis, allowing STR analysis to serve as a secondary control.

### Expected Results and Contribution to Forensic Science

The result of this project will be an optimized protocol that elevates recovery of DNA fragments from 35bp to 100bp in length and demonstrates the ability of these recovered fragments to be used for subsequent SNP analysis. This will directly impact the ability of organizations like AFDIL and the ICMP as well as the community at large by increasing the capacity for identification of remains. While SNP analysis may not someday replace STRs, it will be highly applicable for the identification of remains in mass graves with highly degraded and damaged samples where identification is unsuccessful with STR analysis. For example, a recent evaluation of Norwegian remains by the ICMP resulted in the identification of 93 of 150 bone samples. The remaining 57 did not result in a usable STR profile (41). Analysis of remains from the World Trade Center was also incomplete due to the quality of the recovered skeletal material (29). It is in cases such as this that SNP analysis of smaller fragments may be a useful tool. This project is further strengthened by the interest and collaboration of several organizations including the PSU anthropology department, the ICMP, and Promega. These collaborations combined with support from NEAFS will help to increase the impact of the implementation of the developed protocol.

## Bibliography

1. Amory, S., Huel, R., Bilic, A., Loreille, O., & Parsons, T. J. (2012). Automatable full demineralization DNA extraction procedure from degraded skeletal remains. *Forensic Science International: Genetics*, 6(3), 398-406. <http://doi.org/10.1016/j.fsigen.2011.08.004>
2. Avila-Areas, M. C., Sandoval-Velasco, M., Schroeder, H., Carpenter, M. L., Malaspinas, A.-S., Wales, N., ... Gilbert, M. T. P. (2015). Comparative performance of two whole-genome capture methodologies on ancient DNA Illumina libraries. *Methods in Ecology and Evolution*, n/a-n/a. <http://doi.org/10.1111/2041-210X.12353>
3. Castellano, S., Parra, G., Sanchez-Quinto, F. a, Racimo, F., Kuhlwilm, M., Kircher, M., ... Paabo, S. (2014). Patterns of coding variation in the complete exomes of three Neandertals. *Proceedings of the National Academy of Sciences of the United States of America*, 111(18), 6666-71. <http://doi.org/10.1073/pnas.1405138111>
4. Dabney, J., Knapp, M., Glocke, I., Gansauge, M.-T., Weihmann, A., Nickel, B., ... Meyer, M. (2013). Complete mitochondrial genome sequence of a Middle Pleistocene cave bear reconstructed from ultrashort DNA fragments. *Proceedings of the National Academy of Sciences of the United States of America*, 110(39), 15758-3. <http://doi.org/10.1073/pnas.1314445110>
5. Gamba, C., Hanghoj, K., Gaunitz, C., Alfarhan, A H., Alquraishi, S. a., Al-Rasheid, K. a. S., ... Orlando, L. (2015). Comparing the performance of three ancient DNA extraction methods for high-throughput sequencing. *Molecular Ecology Resources*, n/a-n/a. <http://doi.org/10.1111/1755-0998.12470>
6. Holland, MM., Cave, CA., Holland, CA., Bille, TW. (2003) Development of a quality, high throughput DNA analysis procedure for skeletal samples to assist with the identification of victims from the world trade center attacks. *Croatian Medical Journal* 44(3) pp.264-272
7. Morild, I., Hamre, S., Hue!, R., Parsons, T. (2015). Identification of Missing Norwegian World War II Soliders, in Karelia Russia. *Journal of Forensic Science*. <http://doi.org/10.1111/1556-4029.12767>
8. Parsons, T. J., Hue!, R., Davoren, J., Katzmarzyk, C., Milos, A., Selmanovic, A., ... Rizvic, A. (2007). Application of novel "mini-amplicon" STR multiplexes to high volume casework on degraded skeletal remains. *Forensic Science International: Genetics*, 1(2), 175-179. <http://doi.org/10.1016/j.fsigen.2007.02.003>
9. Pilli, E., Modi, A., Serpico, C., Achilli, A., Lancioni, H., Lippi, B., ... Caramelli, D. (2013). Monitoring DNA Contamination in Handled vs. Directly Excavated Ancient Human Skeletal Remains. *PLoS ONE*, 8(1), 1-6. <http://doi.org/10.1371/journal.pone.0052524>
10. Rohland, N., & Hofreiter, M. (2007). Ancient DNA extraction from bones and teeth. *Nature Protocols*, 2(7), 1756-1762. <http://doi.org/10.1038/nprot.2007.247>
11. Yang D.Y, Wayne J.S, Dudar J.C, & Saunders S.R. (1998). Technical note: improved DNA extraction from ancient bone using silica-based spin columns. *Am J Phys Anthropol*, 105( 4), 539-543. [http://doi.org/10.1002/\(SICI\)1096-8644\(199804\)105](http://doi.org/10.1002/(SICI)1096-8644(199804)105)



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Angelica Graver



Best Oral Presentation – Undergraduate  
Jessica Bouchet



Best Scientific Poster  
Xia Yearwood-Garcia



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All submission materials for either the scholarship or the research grant must be completed, and electronically submitted by **April 30, 2017**. **The 2017 Awards recipients will be notified no later than September 1, 2017.**

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**George W. Neighbor Jr. Memorial Scholarship – Undergraduate Winner 2015**  
**Erica Johnson**

It has been a great honor to be awarded the 2015 George W. Neighbor undergraduate scholarship as recognition for my hard work as a student in forensic science.

I received the award as a college senior entering graduate school at Arcadia University in Glenside, PA. While a full-time student, I was working nights and weekends at a local restaurant to pay for tuition. The scholarship lessened this burden immensely and allowed me to spend more time on my schoolwork, research project, and graduate thesis.

Being recognized by NEAFS for excellence in my academic program helped me stick out to potential employers and land interviews at some of the country's most well-known forensic laboratories.

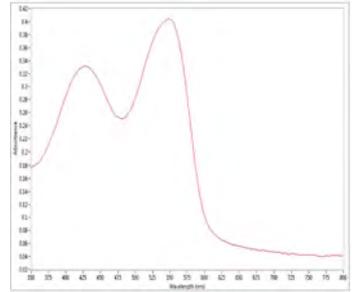
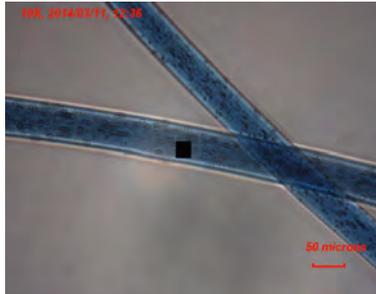
Presently, I am working for the New York City Office of the Chief Medical Examiner in the Toxicology laboratory. It is a huge personal achievement to be working for a government organization, not to mention the very first forensic toxicology laboratory in the country! I have been very fortunate to attend the Society of Forensic Toxicologists annual meeting, and will have future opportunities to gain continuing education through my employer.

Thank you to NEAFS for their recognition and generosity. I aspire to become a great scientist, mentor, and leader like George W. Neighbor, and be able to give back to future students wishing to pursue careers in forensic science.

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George W. Neighbor, Jr. Memorial Scholarship Graduate – Courtney Mower  
Carol De Forest Research Grant – Chandler Grant and Elena Zavala  
Meritorious Service Award – George W. Chin

#### **2015**

George W. Neighbor, Jr. Memorial Scholarship Graduate - Kaitlyn Hess  
George W. Neighbor Jr. Memorial Scholarship Graduate – Erica Johnson  
Carol De Forest Research Grant – Ashton Lesiak  
Meritorious Service Award – David San Pietro

#### **2014**

George W. Neighbor, Jr. Memorial Scholarship Undergraduate - Angelica Graver  
George W. Neighbor Jr. Memorial Scholarship Graduate - Heidi Campbell  
Carol De Forest Research Grant - Emily Meyers  
Meritorious Service Award – Peter Diaczuk

#### **2013**

George W. Neighbor, Jr. Memorial Scholarship Undergraduate - Emily Fuller  
George W. Neighbor, Jr. Memorial Scholarship Graduate - Ashton Lesiak  
Carol De Forest Research Grant - Rachel Bower  
Meritorious Service Award – Vincent Desiderio

#### **2012**

George W. Neighbor, Jr. Memorial Scholarship Undergraduate – Kaitlin Hafer  
George W. Neighbor, Jr. Memorial Scholarship Graduate - Daniel Hall  
1st Carol De Forest Research Grant – Joseph Iacona  
1st Meritorious Service Award – Ted Schwartz

#### **2011**

George W. Neighbor, Jr. Memorial Scholarship Undergraduate – Elizabeth Sunderhaus  
George W. Neighbor, Jr. Memorial Scholarship Graduate - Kristen Johnson

#### **2010**

George W. Neighbor, Jr. Memorial Scholarship Undergraduate – Jennifer Bonetti  
George W. Neighbor, Jr. Memorial Scholarship Graduate - Loretta Kuo

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Interested laboratories can simply complete the attached application and email it to the NEAFS Education Chairperson at [education@neafs.org](mailto:education@neafs.org). The Education Chair will contact the person designated on the form within 10 business days of receiving the application.

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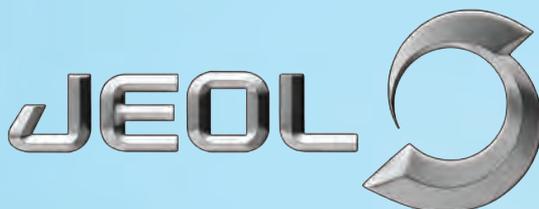
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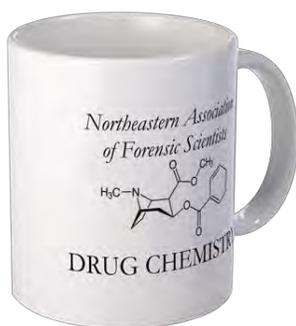
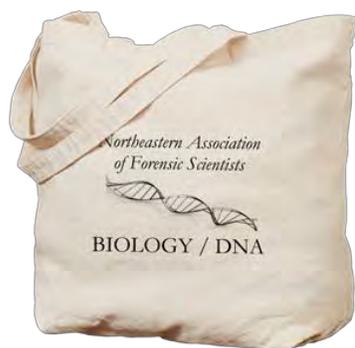
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Applicants must submit a *Pre-Approval Application* prior to attending the training for which they wish to obtain funding. All applications must be complete with a brief course description, statement as to how the applicant will benefit from attending the training and justification for receiving funding (i.e. insufficient employer funding or continuing education requirements).

Notification will be given to each applicant upon receipt of the *Pre-Approval Application*. This notification lets the applicant know that their submission has been received by NEAFS and is being reviewed by the Board. In no way shall this notification serve as approval to receive reimbursement or that the applicant will receive any Training Scholarship Funds. Please allow several weeks for the Board to thoroughly review each application. Applicants can expect to be informed of the acceptance or rejection of their application within 60 days of receiving this *Pre-Approval Application* notification.

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Please submit all inquiries, applications and supporting documentation to: [awards@neafs.org](mailto:awards@neafs.org).

## 2017 Training Scholarship Fund

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The Northeastern Association of Forensic Scientists (NEAFS) is proud to offer its members a 2017 Training Scholarship Fund. Regular members, in good standing, are eligible to receive up to \$200 towards training, workshop or non-NEAFS meeting registration expenses. Detailed instructions and application forms are available on the NEAFS website. Simply click the "Training" link at the top of the screen and scroll down to the "NEAFS Training Scholarship Forms". The current application period is January 1st, 2017 to December 31st, 2017. Reimbursements will be issued on a first come, first serve basis and funding is limited. If you plan to attend a non-NEAFS meeting workshop, training or course during this application period and will not be funded by your agency or any other non-NEAFS related entity, we highly encourage your swift application for the 2017 Training Scholarship Fund. Please visit the NEAFS [training](#) website to take advantage of this great NEAFS opportunity and to view upcoming training opportunities!

### Upcoming Training

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#### January 2017

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**Houston Forensic Science Center, Houston, Texas**

**Forensic Photography**

**January 9-13, 2017**

Contact: Jordan Benton, Telephone: 713-929-6769 or

Email: [registration@houstonforensicscience.org](mailto:registration@houstonforensicscience.org)

Website: <http://houstonforensicscience.org/training.php>

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**Houston Forensic Science Center, Houston, Texas**

**Introduction to Fingerprint Comparison**

**January 23-27, 2017**

Contact: Jordan Benton, Telephone: 713-929-6769 or

Email: [registration@houstonforensicscience.org](mailto:registration@houstonforensicscience.org)

Website: <http://houstonforensicscience.org/training.php>

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## February 2017

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**Houston Forensic Science Center, Houston, Texas**  
**Crime Scene Analysis and Reconstruction**  
**February 6-10, 2017**

Contact: Jordan Benton, Telephone: 713-929-6769 or  
Email: [registration@houstonforensicscience.org](mailto:registration@houstonforensicscience.org)  
Website: <http://houstonforensicscience.org/training.php>

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**Houston Forensic Science Center, Houston, Texas**  
**Crime Scene Investigation**  
**February 13-17, 2017**

Contact: Jordan Benton, Telephone: 713-929-6769 or  
Email: [registration@houstonforensicscience.org](mailto:registration@houstonforensicscience.org)  
Website: <http://houstonforensicscience.org/training.php>

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## April 2017

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**Houston Forensic Science Center, Houston, Texas**  
**Forensic Anthropology - Skeletal Recovery**  
**April 3 - 7, 2017**

Contact: Jordan Benton, Telephone: 713-929-6769 or  
Email: [registration@houstonforensicscience.org](mailto:registration@houstonforensicscience.org)  
Website: <http://houstonforensicscience.org/training.php>

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**Houston Forensic Science Center, Houston, Texas**  
**Intermediate Latent Print Comparison**  
**April 17-21, 2017**

Contact: Jordan Benton, Telephone: 713-929-6769 or  
Email: [registration@houstonforensicscience.org](mailto:registration@houstonforensicscience.org)  
Website: <http://houstonforensicscience.org/training.php>

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## Certification Reimbursement

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The NEAFS Board of Directors has voted to reimburse the American Board of Criminalistics and International Association for Identification exam sitting fees for five NEAFS members (regular or associate) in good standing who pass the ABC or IAI exam. This offer is for any exam completed in 2017. There will be an ABC exam offered at the NEAFS Annual meeting. After passing the examination, please fill out the Certification Reimbursement Form ([www.neafs.org](http://www.neafs.org)) and email the completed form with proof of passing the exam to the NEAFS Certification Chair Peter Diaczuk at [certification@neafs.org](mailto:certification@neafs.org). The reimbursement is based on a first come first served basis. Remember you must pass the ABC or IAI exam to be considered for reimbursement.

## Important Notice

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The AAFS Board of Directors decided to discontinue the Journal of Forensic Sciences subscriptions for the affiliate groups at the end of 2016. Should members wish to continue subscribing, they may do so directly through the publisher.

## Missing Something

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Be sure to check the NEAFS website for the latest **Job Opportunities**.

**B.O.D. Meeting Minutes and Financial Statements** will now be placed in the Member Area of the NEAFS website. If you have trouble logging in please contact the web master, [webmaster@neafs.org](mailto:webmaster@neafs.org).

**\*DON'T FORGET TO LIKE US ON FACEBOOK\***