INTERNATIONAL FORENSIC RESEARCH INSTITUTE

2000-2001 ACCOUNTABILITY AND PLANNING REPORT

EXECUTIVE SUMMARY

This State University System of Florida type II institute serves local and national law enforcement efforts in the application of scientific principles to the administration of justice. The main functions of this institute is to conduct original research in forensic science, transfer technologies from other scientific disciplines for use in forensic applications, provide scientific expertise to the law enforcement and legal community and provide needed continuing education and advanced training to practicing scientists. The formal partnerships between the institute, law enforcement agencies, government laboratories and corporations results in a unique center for research and training. A large number of institute affiliated FIU faculty conduct research and provide forensic expertise. The Metro-Dade Police Department, the Dade County Medical Examiner's Office, the Broward Sherriff's Office, the Broward County Medical Examiner's Office and the Drug Enforcement Administration house local forensic laboratories in South Florida. A combined total of over 100 scientists work in these laboratories conducting evidence examinations and offering expert testimony in state and federal courts. These laboratories enjoy a highly respected international reputation. FIU and these local forensic science laboratories have regular interactions with scientists from around the world.

   a. Improvement in IFRI web site including links and helping construct web pages for all IFRI faculty as well as links to major forensic science researchers/programs around the world.
   b. Design and printing of color brochure that is distributed to prospective students.
   c. Expansion of Detector Dog Training and Certification program nationwide.
   d. Hosting of the 2nd Annual Detector Dog Conference in Miami Beach.
   e. Increased continuing legal education (CLE) courses coordinated with FIU Division of University Outreach and the Legal Studies Program.
   f. Increased workshops/certification programs for law enforcement personnel and FIU faculty and students.
   g. Add additional partners including the Maples Center for Forensic Medicine (UF).
   h. Improved integration of FIU faculty into IFRI activities.
   i. Implementation of a Proficiency Testing program for crime laboratories.
   j. $ 276,375. in external funding, $10,000. from corporate donation and $45,000. from fee for service activities.
   k. Nine publications with three additional publications in press and 14 presentations by the IFRI faculty in national and international meetings.

a. Continued improvement in IFRI web site including links and helping construct web pages for all IFRI faculty as well as links to major forensic science researchers/programs around the world.
b. Recruitment of an additional Forensic Science faculty member.
c. Continued expansion of Detector Dog Training and Certification program nationwide.
d. In partnership with the NFSTC, conduct an education and training session for the chemists at the DEA through the offering of two graduate level courses.
e. Increased additional continuing legal education (CLE) courses coordinated with FIU Division of University Outreach and the Legal Studies Program.
f. Increased workshops/certification programs for law enforcement personnel and FIU faculty and students.
g. Improved integration of FIU faculty into IFRI activities.
h. Continue to attract external research funding and continue to publish results of research in the scientific literature.
i. Continue to attract external research funding
j. Continue to present results in national and international meetings

3. SUPPORTING DOCUMENTATION. See attached including affiliated faculty, details of the Certificate and M.S. programs in Forensic Science administered by IFRI, representative published research and listing of research funding awarded and proposed.

The IFRI affiliated FIU faculty and research areas are listed below:

Department of Biological Sciences:

James Allan, Ph.D., Asst. Professor of Biology; Plant evolutionary and developmental molecular genetics

Timothy Collins, Ph.D., Asst. Professor of Biology; Molecular and organismic evolutionary biology

Keith W. Condon, Ph.D., Asst. Prof. of Biology; Forensic anthropology, dental anatomy

Javier Francisco-Ortega, Ph.D., Asst. Professor of Biology; Systematics and evolution of plants using DNA markers to fingerprint populations

Robert George, Ph.D., Instructor, Biology; Forensic anthropology, forensic facial approximation

Ronald Jones, Ph.D., Prof. of Biology; Director, Southeast Env. Research Program; Environmental forensics/legal issues

Suzanne Koptur, Ph.D., Professor of Biology; Plant population ecology, insect/plant interactions, native and exotic species implications
Lidia Kos, Ph.D., Asst. Professor of Biology; Mammalian developmental molecular genetics

Kalai Mathee, Ph.D., Assoc. Professor of Biology; Molecular mechanisms of bacterial pathogenesis

Martin L. Tracey, Jr., Ph.D., Professor of Biology; DNA - evidence for population substructuring in identity testing

Joel Trexler, Ph.D., Assoc. Professor of Biology; Population and community ecology, population genetics, fish paternity

Department of Chemistry

Jose Almirall, Ph.D., Asst. Professor of Chemistry and Assoc. Director, IFRI; ICP/MS and LA/ICP/MS for materials analysis. GHB and flammables by various methods.

George Duncan, Ph.D., Courtesy Prof. of Chem. & DNA Supervisor, Broward Crime Lab; Applications of PCR and quality assurance in Forensic Science

Kenneth G. Furton, Ph.D., Chairperson, Chemistry Dept. and Director, IFRI; Drug detection, arson analysis, fingerprint development, detector Dogs, GC/MSn

Robin Gall, Ph.D., Courtesy Prof. of Chemistry, Criminalist, Broward Crime Lab.; Trace analysis, arson analysis

W. Lee Hearn, Ph.D., Courtesy Prof. of Chemistry, Dir., Dade Co. Forensic Tox. Lab.; Chemical analysis of biological specimens

Rudolf Jaffe, Ph.D., Assoc. Prof. & Assoc. Director, Southeast Env. Research Prog.; Source identification of petroleum distillates, environmental forensics

Janet Lineback, Ph.D., Professor of Chemistry; Molecular epidemiology, hereditary hemachromatosis, and toxicology

Stefan Rose, M.D., Courtesy Prof. of Chemistry; Psychiatry, drug analysis, human performance/ethanol and drugs

Steven Winkle, Ph.D. Associate Professor of Chemistry; DNA fingerprinting, recovery of DNA samples from surfaces

Department of Earth Sciences

Gautam Sen, Ph.D., Professor of Geology and Department Chair; Environmental SEM, Petrogenesis of basalts and ultramafic rocks
Department of Physics:

Bernard S. Gerstman, Ph.D., Professor of Physics; Accident reconstruction, human effects of collisions, falls, projectiles, etc.

Criminal Justice Program

Luis P. Salas, Ph.D., Prof. Criminal Justice, Director, Center for Administration of Justice; Research on justice problems in the Americas

W. Clinton Terry, Ph.D., Prof. of Criminal Justice; Substance abuse research

Department of Psychology

Ronald Fisher, Ph.D., Professor, Legal Psychology; Co-developer of the Cognitive Interview, accuracy of witness memory

Margaret Bull Kovera, Ph.D., Asst. Prof., Legal Psychology; Jury decision making, expert psychological testimony, child witnesses

Gary Moran, Ph.D., Professor, Legal Psychology; Pretrial publicity, jury selection, capital trials and tort reform

Janet Fraser Parker, Ph.D., Professor, Legal Psychology; Eyewitness testimony of children.

Department of Political Science

Eduardo A. Gamarra, Professor, Department of Political Science and Director, LACC; Narcotics trafficking, international drug money laundering

Ivelaw Griffith, Professor, Political Science and Dean, Honors College; Research on the drug trade and security issues in the Caribbean.

Rebecca Salokar, Associate Professor, Political Science; Constitutional law and minority rights, judicial administration, law and politics

John F. Stack, Director, Institute for Public Policy and Citizenship Studies, Professor, Department of Political Science; International relations, constitutional law.

Finance Department and Other

Simon Pak, Assoc. Prof., Finance, Assoc. Dir., Center for Banking and Financial Inst.; Forensic economics, money laundering analysis
John Zdanowicz, Professor of Finance, Dir., Center for Banking and Financial Inst.; Forensic economics, value of a human life, money laundering and fraud analysis

Ken Rogerson, Professor of Philosophy and Director of Humanities, Director of the Law; Ethics & Society certificate program. Ethics and Political Philosophy.

Brian Schriner, Director of speech Communication & FIU Forensic Team; Courtroom persuasion, opening statements/closing arguments

Victor Uribe, Assistant Professor, Department of History; Judicial reform, Comparative legal/constitutional systems: Latin America

REFEREED PUBLICATIONS (May 1, 2000 – April 30, 2001)


**PAPERS/CHAPTERS IN PRESS (May 1 2000 – April 30 2001)**

10) S. Rose and K.G. Furton, **Variables Affecting the Accuracy and Precision of Breath Alcohol Instruments Including the Intoxilyzer 5000**, Invited Book Chapter for “Georgia DUI Law” edited by George Stein, Lexus Law Publishing Co., in press.


**Scientific Presentations/Seminars**

April 2001 “Materials Analysis in Forensic Science: The Application of ICP-MS and LA-ICP-MS for Trace Elemental Comparisons”, Department of Chemistry/National Center for Forensic Science (Invited Seminar), University of Central Florida, Orlando, FL. (PA)

March 2001 “Catching Crooks with Chemistry” Symposium of the Pittsburgh Conference, (Co-organizer and Speaker) “Materials Characterizations by Trace Element Content: Forensic Glass Comparisons”, Pittsburgh Conference, New Orleans, LA (coPA)


February 2001 “An introduction to Solid-Phase Microextraction—Forensic Applications”, Workshop to the AAFS membership (Co-organizer), American Academy of Forensic Sciences, Seattle, WA (Workshop Co-chair)

February 2001 “Glass Analysis by ICP-MS”, NIJ Grantee meeting, (Invited Paper), AAFS, Seattle, WA (coPA)

February 2001 “Internet2/Next Generation Internet (NGI) and Distance Learning in Forensic Science: The Use of WebCT and other Web Tools” (Invited Presentations), AAFS, Seattle, WA (coPA)
February 2001 “Quantitation of Gamma-hydroxybutyric Acid and Gamma-butyrolactone using Capillary Electrophoresis and High Performance Liquid Chromatography”, (Paper) AAFS, Seattle, WA (SP)

February 2001 “Identification and Characterization of Pyrolysis Products in Fire Debris Analysis” (Paper) AAFS, Seattle, WA (SP)

February 2001 “Method Validation Studies for Glass Comparisons Using Elemental Data from ICP-MS and ID-ICP-MS”, (Paper), AAFS, Seattle, WA (SP)

February 2001 “Forensic Evaluation of Automotive Lenses by PGC, FTIR, Raman, SEM-EDX and LA-ICP-MS”, (Paper), AAFS, Seattle, WA (SP)

February 2001 “Chemistry of Fire Extinguisher Agents and Their Interference in Fire Debris Analysis”, (Poster), AAFS, Seattle, WA (SP)

February 2001 “Critical Evaluation of SPME For the Rapid Analysis of High Explosives in Water and Post-Explosion Residues Combined with Separation Methods Including GC, HPLC and MECC”, (Poster), AAFS, Seattle, WA (SP)

September 2000 “Relative discriminating power of refractive index, ICP/AES, and ICP/MS for forensic glass comparisons” FACSS 2000, Nashville, TN. (SP)


May 2000 “Trace elemental analysis of forensic glass by ICP-MS” FAME 2000, Orlando, Fl. (SP)

A.

Funding –2000 - 2001

TSWG, “Discrimination of Forensic Glasses by ICP-MS” $ 125,945.

FDLE, “Improved Detector Dog Training and Certification Program” $ 50,000.

FIU, DSRT “Matching Grant to purchase Laser Ablation Instrument” $ 30,000.

Trace Evidence Proficiency Testing Program $ 28,640.

Supelco “Methods Development in Forensic Science” $ 10,000.
FIU University Outreach “Forensic Web Based Course Development” $10,000.
FIU Outreach, Chemistry and Analysis of Explosives Tuition Plus $7,800.
FIU Outreach, Forensic Science Brochure Marketing Grant $6,200.
FSU/NSF, “Forensic Chemistry for Educators Course Development” $6,000.
Misc. Donors “Forensic Science Methods Development” $1,790.

Total $276,375.


Submitted Phase II of TSWG “Discrimination of Glasses by ICP-MS” $125,000.
Investigation of Hyperspectral Imaging for Ink Discrimination – NIJ $287,000.
Graduate Research Fellowship Application on behalf of Shirly Montero $15,000.

B.
Pre-Proposals - 2000 – 2001

Advanced Forensic Education at FIU – NOTA Initiative $493,000.
Forensic Analysis of Explosive Residue Background – (TSWG) $97,000.
Analytical Techniques to Validate Explosive Detector Dogs for Evidentiary Purposes (TSWG)


College of American Pathologists “Development of New Trace Evidence Proficiency Tests”, Co-P.I. with J. Almirall, $32,808.00, not funded. (IFRI undertook its own PT program)

FBI/DOE proposal "Development and Use of Optimization and Calibration Tools for Trained Detector Dogs and Other Chemical Detection Devices", co-P.I. with L. Myers (Auburn University), $125,000, not funded.