

Northeast Regional Forensic Institute

(NERFI)

<http://www.albany.edu/nerfi/dna>

518-437-3791

12 week, 12 Graduate Credit Hour DNA Academy

DNA Casework DNA Databank Serology

Jamie L. Belrose, MS

Lucy Davis Houck, BS

Margaret A. Terrill, MSFS

W. Mark Dale MBA

Donald Orokos Ph. D.

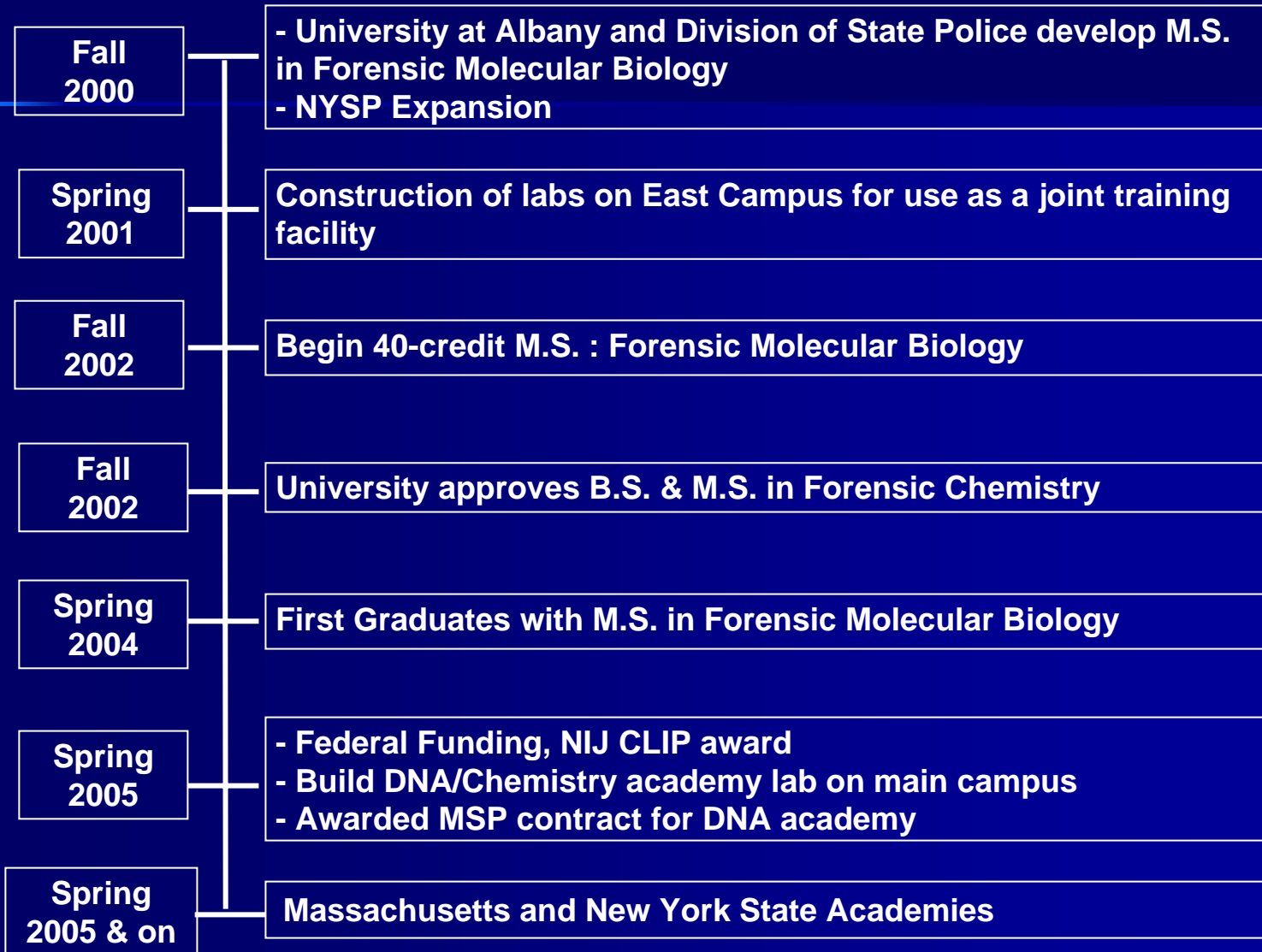


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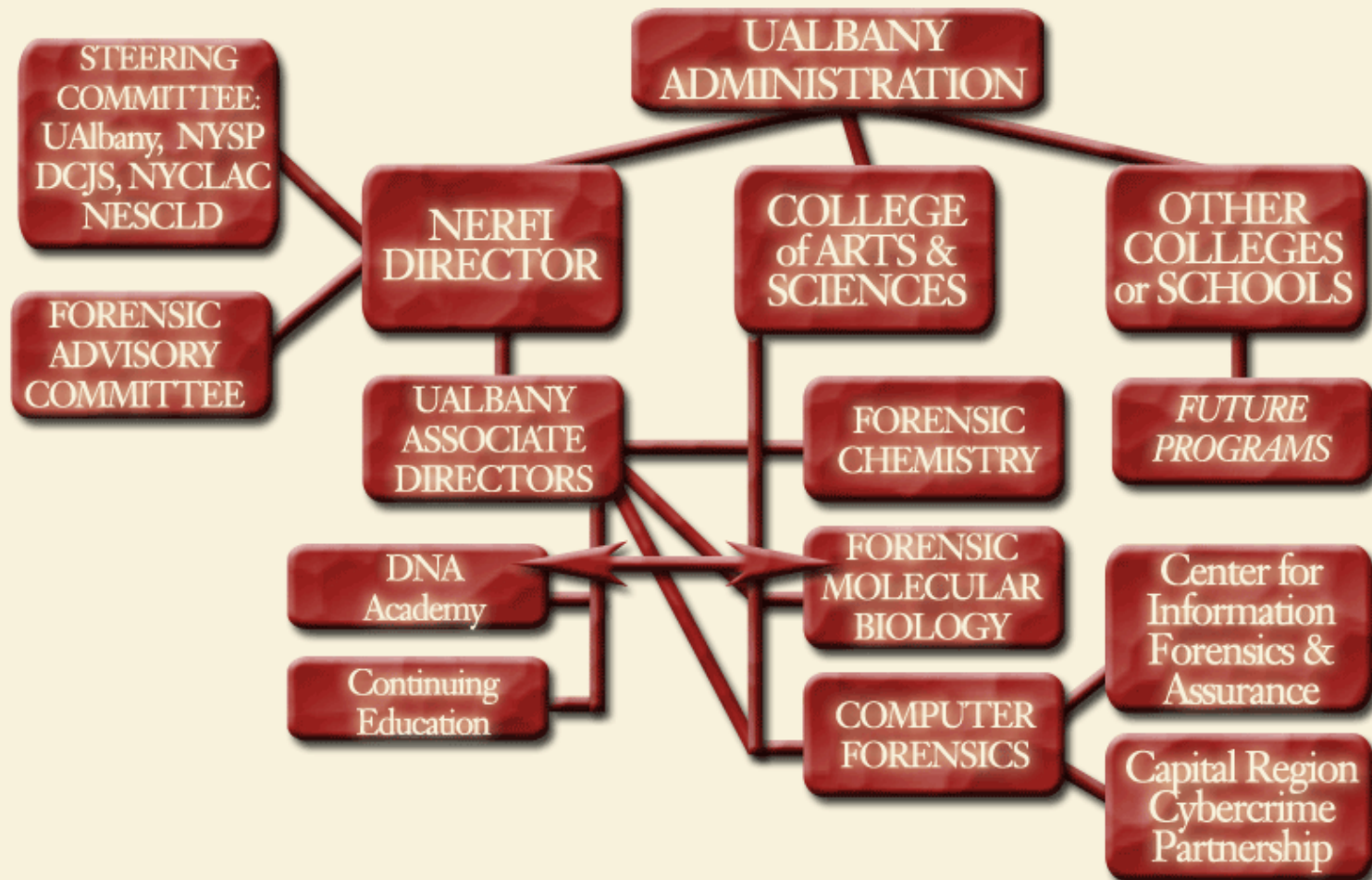
NERFI

- Answering a need to produce highly trained, case-ready forensic scientists
 - Casework backlogs in public and private labs
 - Burden of one-on-one mentoring
 - Competition for lab instrumentation
 - Professional development opportunities
- Collaborations with local, state and federal criminal justice agencies
- Collaborations with academic institutions
 - Forensic education programs
 - Forensic research

NERFI History



NERFI Organizational Structure



Faculty

■ Forensic Scientists

- Dr. Charlotte Word *
- Dr. Allison Eastman
- Dr. Carol Scherzinger *
- Dr. George Carmody
- Ray Wickenheiser
- Dr. Julie Sutton *
- Rhonda Roby *
- Mr. Steve Hogan, JD
- Lucy Davis Houck, BS
- Andy Wist, MS
- Margaret Terrill, MSFS
- Jacki Higgins, MFS *

■ University at Albany

- W. Mark Dale, MBA
- Dr. Don Orokos
- Dr. Kimi Nishikawa
- Dr. Christine Gervasi
- Jamie Belrose, MS
- Katherine M. Wolfram, MS
- 4 ABT Pre-Docs
- 2 SA FMB Grad Program
- 1 SA MBA

■ NYPTI

- Robert Conflitti
- Paul Clyne
- Debra Whitson

* No longer with NERFI

M.S. Forensic Biology Foundation of DNA Academy

- One of the 1st in the NE to deliver a 40 credit graduate program in Forensic Molecular Biology
- In its 5th year now

M.S. Forensic Biology

Foundation of DNA Academy

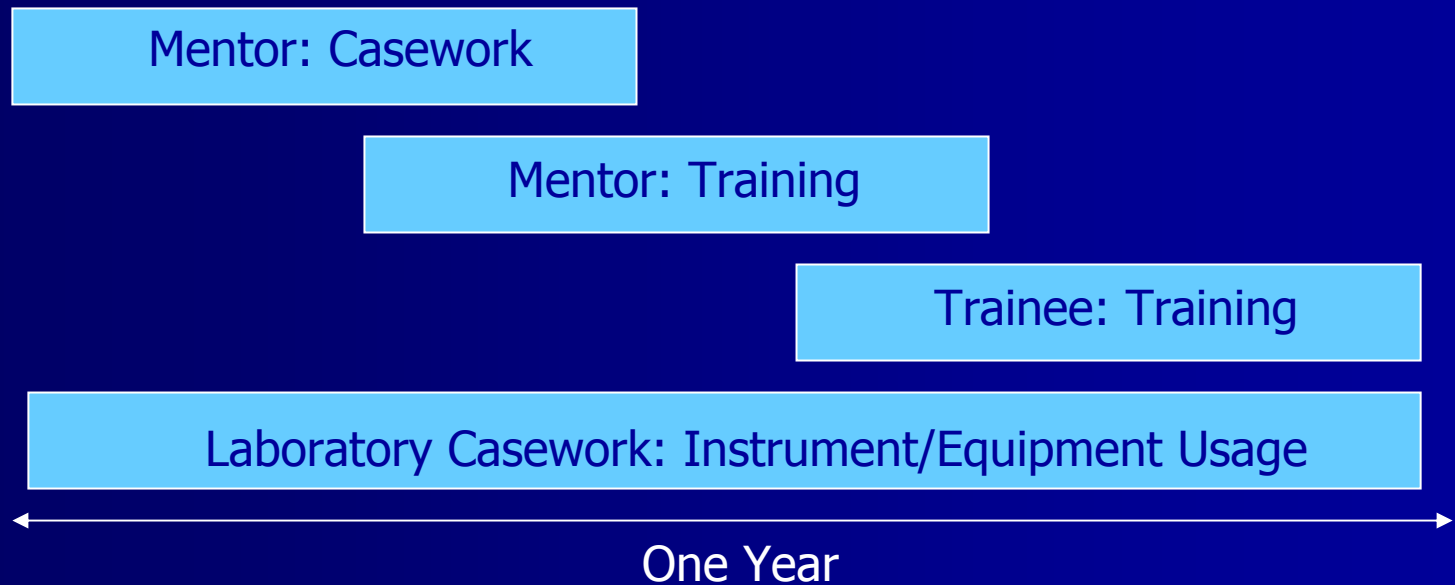
- Program Requirements: 40 credits
 - 29 credit hours in biology
 - 8 credit hours available in supporting courses:
 - School of Public Health
 - Business
 - Criminal Justice
 - Anthropology
- Internship: 6 credit hours

U-Albany Student Statistics

May 2006

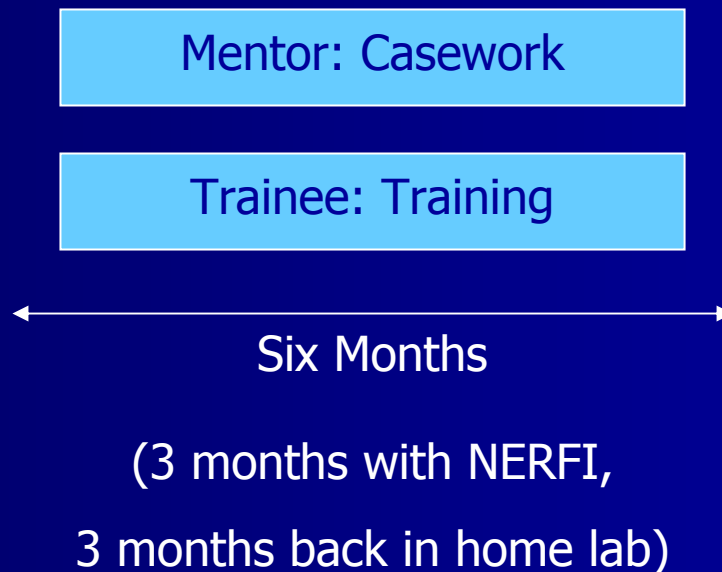
- Total Present Student Body –
 - Part-time – 6
 - Full-time – 21
- Graduates
 - 38
- Placement
 - NERFI
 - NYSP
 - Bode
 - Washington DC PD
 - NYC-OCME
 - Baltimore PD
 - Reliagene
 - NYS Dept. of Health Wadsworth Center
 - Albany Medical College (Ph.D.)
 - SUNY Albany (Ph.D.)

Training Program – In House



Competing for time and resources!!

Training Program - Outsourcing



No competition, 1/2 the time

NERFI's 12 week, 12 graduate credit hour DNA Academy



Week 1 - Fundamentals Week
Molecular Biology

Module 1
1 Cr Hr

Weeks 2 – 5
4 weeks of Laboratory Training

Module 2
5 Cr Hr

Week 6 - Statistics Training

Weeks 7 - 11
5 weeks of Laboratory Training

Module 3
5 Cr Hr

Week 12
Moot Court

Module 4
1 Cr Hr ¹¹

DNA Curricula

■ DNA Casework

- Extraction
- Quantitation (RT-PCR - AB's 7500 Sequence Detection System)
- Amplification (9600's, 9700's)
- Capillary Electrophoresis (AB's 310's, 3130xI)
- Analysis (Genemapper®ID)
- LIMS integration

■ DNA Databank

- FTA Extraction
- Amplification (9600's, 9700's)
- Capillary Electrophoresis (AB's 3130xI)
- Analysis (Genemapper®ID, True Allele™)
- LIMS integration

■ Serology

DNA Curricula (cont.)

- Fundamentals Week
 - Molecular Biology topics
 - Forensic DNA history and related topics
- Statistics
- Instrument Training
 - Theory
 - Operation
 - Maintenance
 - Trouble shooting
- Moot Court
 - New York Prosecutors Training Institute (NYPTI)

SWGDM

Recommendation

- SWGDAM Guidelines- as they apply to the 50 Sample recommendation:
 - Section 5.5 of the Training Guidelines (Jan. 01) states the following: A new DNA laboratory trainee must complete a training notebook documenting his/her own experiences performing evidentiary or known sample analysis. The type of samples included must vary, reflecting the range, type, and complexity of casework or database analyses routinely handled by his/her laboratory duties. To assist in ensuring basic competency, this training notebook must document analysis of a minimum of 50 samples for nuclear DNA analysis.

SWGDM

Recommendation

- SWGDAM Guidelines- as they apply to the 20 data set recommendation:
 - Section 6.4.2 of the Training Guidelines (Jan. 01) states the following: The trainee will review 20 sets of data representative of casework and provide a written interpretation of the data according to the laboratory policy. The trainer will review and assess the reports for accuracy. These data sets can be samples representative of typical casework or actual casework data. The laboratory can maintain a standard file of data sets or share sets with other laboratories.

Sample Sets

■ Various samples

- Diluted/neat blood stains
- Diluted/neat semen stains
- Vaginal swabs
- Fecal swabs
- Pulled hair roots
- Fingernail scrapings
- Gum
- Licked envelopes

■ Various scenarios

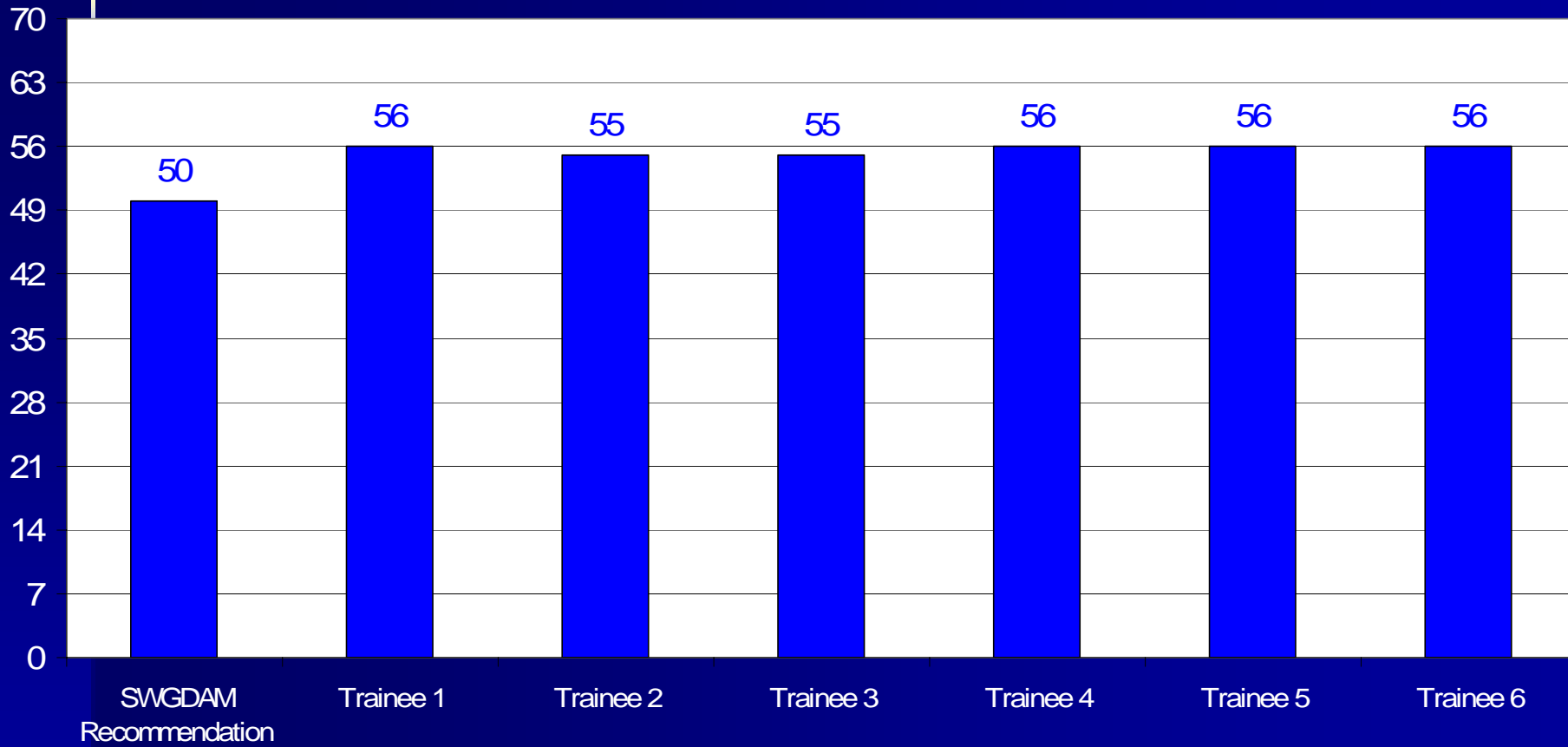
- Murder
- Rape
- Burglary

* Over 2500 samples prepared and QC'd by NERFI staff for NYS Academies I, II and III

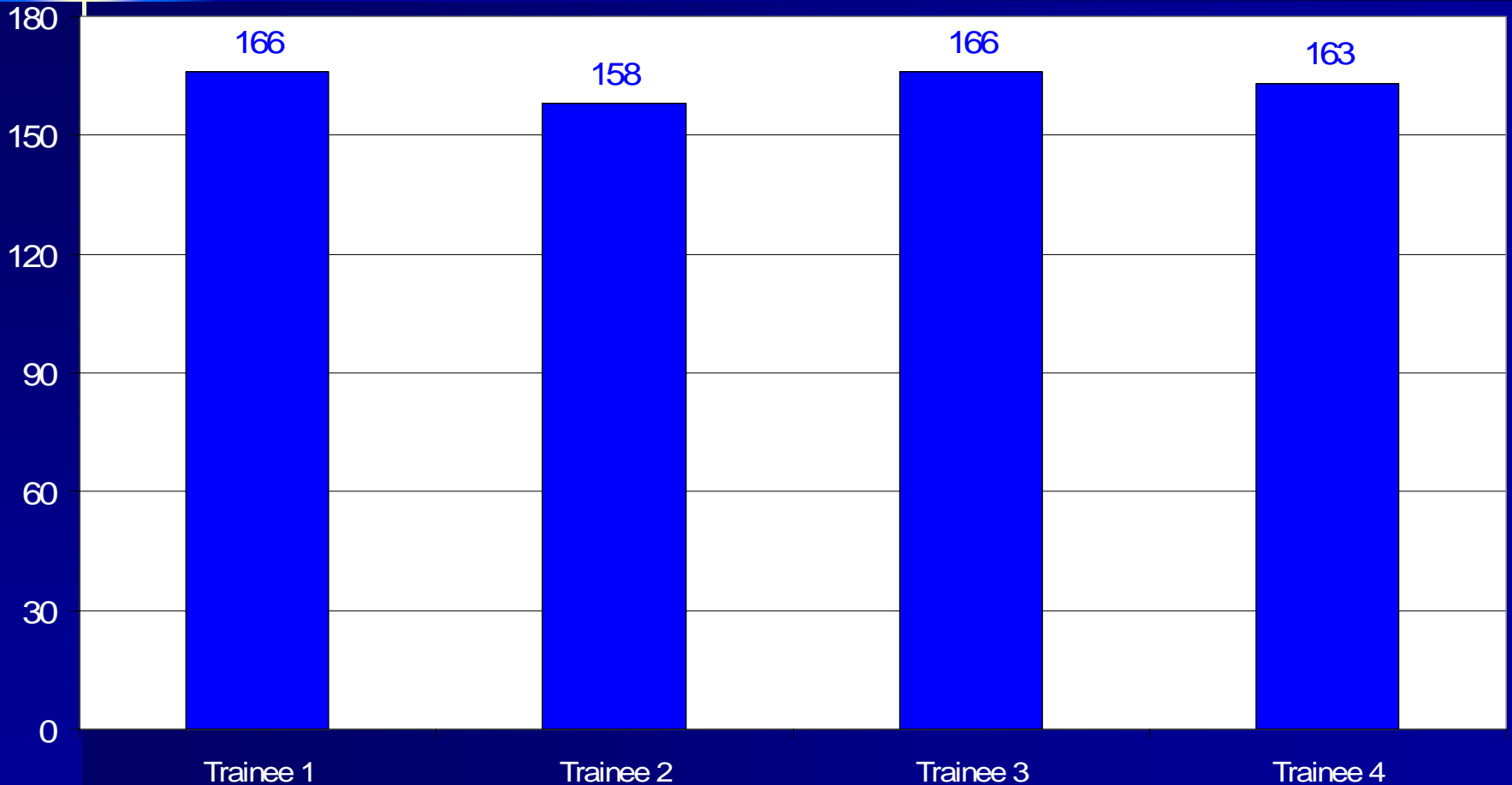
New York State DNA Academies

- Academy I (2006)**
 - 3 Databank Trainees
 - 4 Casework Trainees
- Academy II (2006)**
 - 4 Databank Trainees
 - 6 Casework Trainees
- Academy III (2007 - in progress)**
 - 16 Casework Trainees

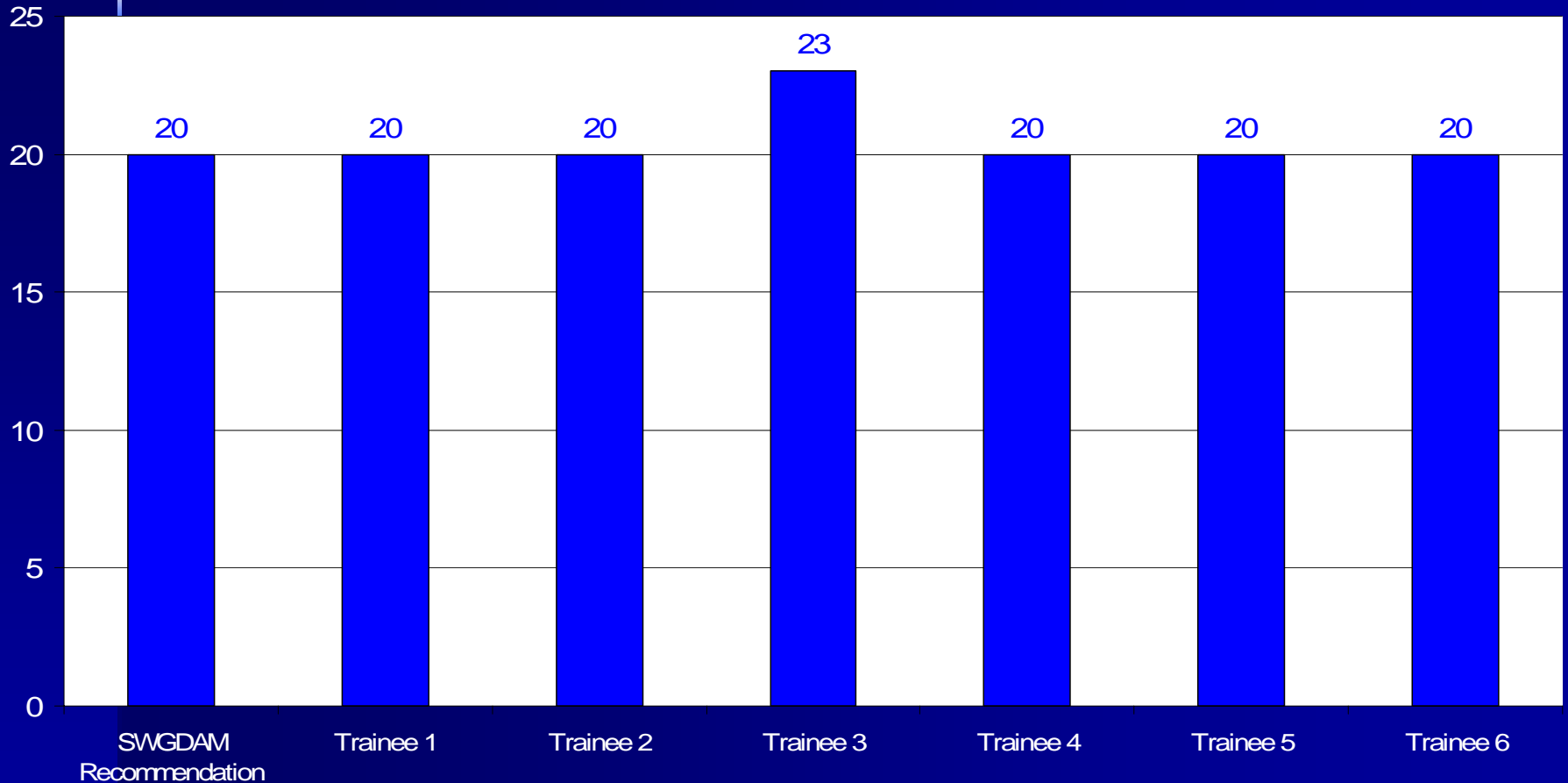
Academy II Casework - Total number of samples extracted and analyzed



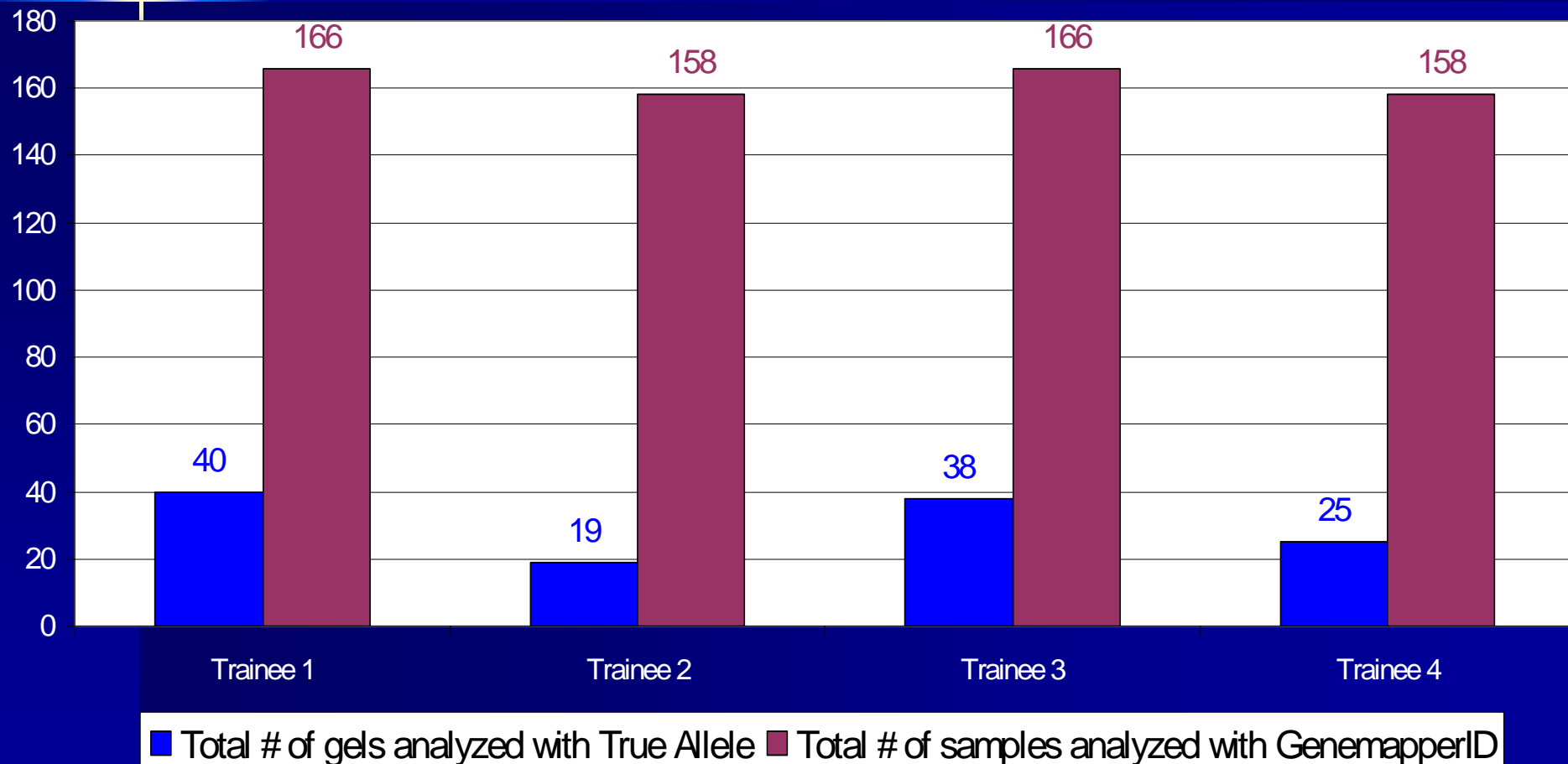
Academy II Databank - Total number of samples set up for PCR or 3130x/



Academy II Casework - Data Sets Analyzed



Academy II Databank – Samples analyzed



Academy II Casework & Databank – Instrument Set-ups

	Independent Real-time PCR Set-up	Independent Amp set-up	Independent 310 Set-up	Independent 3130xl Set-up
CW Trainee 1	6	6	3	3
CW Trainee 2	2	8	3	5
CW Trainee 3	3	7	6	4
CW Trainee 4	2	6	3	4
CW Trainee 5	4	7	3	7
CW Trainee 6	4	6	4	3
Totals	42	80	44	52
DB Trainee 7	NA	1	NA	8
DB Trainee 8	NA	NA	NA	9
DB Trainee 9	NA	1	NA	8
DB Trainee 10	NA	1	NA	7
Totals	NA	3	NA	32
Grand Totals	42	83	44	84

Academy II - Additional Performance Metrics

~ 4,700 hrs in lab instruction

~ 400 hrs in Moot Court and Prep

120 Graduate Credit Hours earned

In conclusion...

- Outsourcing your training program can:
 - Increase the productivity of the training mentor (more time to do casework)
 - Decrease the competition for instruments and equipment in the lab
 - Decrease the total time it takes to train a new analyst (from one year to 6 months)
 - Have your new analyst ready to contribute to the lab's casework backlog sooner

Acknowledgements...

■ University at Albany

- W. Mark Dale, MBA
- Dr. Don Orokos
- Dr. Kimi Nishikawa
- Dr. Christine Gervasi
- Katherine M. Wolfram, MS
- Kurt Gibbs, MS
- Santhoshi Bandla, MS
- Laks Ananthakrishnan, MS
- Ashley Hart, BA
- Jessica Buckenberger, BS

■ Forensic Scientists

- Dr. Allison Eastman
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- Ray Wickenheiser
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