

To be considered, your application form and this completed questionnaire must be on file or received in Nebraska STATE PERSONNEL, wrk4neb@notes.state.ne.us 301 Centennial Mall South, P.O. BOX 94905, LINCOLN, NE 68509-4905, or postmarked on or before the **closing date: March 9, 2007.**

FORENSIC SCIENTIST (BIOLOGY)
Nebraska State Patrol Criminalist
#64-17937-1

Name: _____

Social Security Number: _____

INSTRUCTIONS:

This packet has all the materials necessary for you to apply for the Forensic Scientist position with the Nebraska State Patrol Crime Laboratory. The packet is designed to inventory relevant education and experience for these positions.

Read all instructions throughout the packet before you begin! The packet contains the following materials in sequential order:

PAGE(S)	MATERIALS INCLUDED:	PLEASE RETURN:
1	Instruction Sheet	FYI
2	SECTION 1: Minimum Qualification Statement Sheet	Return
3	SECTION 2: Academic Preparation Instructions	FYI
4-6	SECTION 2: Academic Preparation	Return
7	SECTION 3: DNA Internship	Return
8-10	SECTION 4: Training and Experience Inventory	Return
*	Include a Copy of your Current Resume and College Transcripts (Please Note: Official Transcripts will be required from those applicants who progress to the Background Investigation phase of this recruitment).	Return

Please keep the following in mind when filling out your application materials:

- **Make your entries clear and legible. No credit will be given for information that cannot be understood.**
- Please keep a photocopy of the completed packet for your future reference.
- **During a later phase of the selection process you may be asked to substantiate any claim that you make in your application materials.**

Your name and Social Security Number should be on each sheet you submit.

The top group of candidates advancing in the selection process will be notified about subsequent steps in the process and the dates.

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FORENSIC SCIENTIST, Nebraska State Patrol Criminalist #64-17937-1

Name: _____

Social Security Number: _____

SECTION 1 - MINIMUM QUALIFICATION STATEMENT SHEET

Section 1 relates to the minimum academic preparation required to be considered for DNA Analyst positions at the Nebraska State Patrol Crime Laboratory. To qualify for consideration to these positions you must have the qualifications outlined below, or you do not meet the minimum qualifications for DNA Analyst. After you have decided that you have the minimum qualifications for these positions, complete this Minimum Qualification Statement Sheet. If you meet the requirement of either a relevant four-year or advanced degree and the required core coursework - complete those items as directed and proceed to Sections 2, 3 and 4.

- I have completed a four-year or advanced degree with a major equivalent in biology, chemistry, biochemistry, forensic science or a closely related science.

Four Year Degree Program and Major:
Month and Year:
Institution:

Graduate Degree Program and Major:
Month and Year:
Institution:

- I have completed the required core coursework (**Genetics, Biochemistry and Molecular Biology, Statistics and/or Population Genetics**) with a grade of "C" or better.

If you do not meet these two minimum requirements you are not eligible for further consideration.

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SECTION 2 - ACADEMIC PREPARATION INVENTORY - **Instructions and Examples**

Section 2 is designed to report your academic preparation. Your responses should be clear, concise and appropriately detailed. If you need more space than is provided, please attach additional sheets. Please label additional sheets, indicating which academic study area you are referring to.

For each Academic Study area please include:

- ◆ Total number of undergraduate and graduate credits earned from an accredited educational institution (grade of "C" or higher)
- ◆ Course number(s)
- ◆ Course title(s)
- ◆ Name of educational institution
- ◆ Year course was successfully completed

Please note the following points:

- ◆ We do not give credit in Section 2 for training that is not from an accredited institution (e.g., on-the-job training, vocational credit, continuing education units - CEUs, etc.)
- ◆ You may claim each course in only ONE Academic Study Area

Example - COURSEWORK Claimed:

Academic Study Area	No. of Credits Claimed: UNDERGRAD	No. of Credits Claimed: GRADUATE	Course Number(s), Title(s), Institution and Year
General (Fundamental) Chemistry 1 - Lecture/Lab: Stoichiometry and the mole concept, the behavior of gases, liquids and solids, thermochemistry, electronic structure of atoms and chemical bonding, descriptive chemistry of selected elements and compounds, chemical equilibrium.	3		This is a complete and responsive reply: 103 General Chemistry UW-Madison Fall, 2000
General (Fundamental) Chemistry 1 - Lecture/Lab: Stoichiometry and the mole concept, the behavior of gases, liquids and solids, thermochemistry, electronic structure of atoms and chemical bonding, descriptive chemistry of selected elements and compounds, chemical equilibrium.			This is an incomplete and non-responsive reply: Principles of Chemistry Seminar

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SECTION 2

Please indicate the type of college or university that you attended.

- The college or university that I attended operated on a semester basis.
- The college or university that I attended operated on a quarter basis.
- The college or university that I attended operated on some basis other than semester or quarter. If yes, please explain.

NOTE: You may claim each course in only ONE Academic Study Area.

Academic Study Area	No. of Credits Claimed: UNDERGRAD	No. of Credits Claimed: GRADUATE	Course Number(s), Title(s), Institution and Year
General (Fundamental) Biochemistry: Protein structure and function, DNA and RNA structure, gene expression, metabolism of carbohydrates, lipids, proteins and amino acids.			
General (Fundamental) Genetics: Basic concepts and principles of prokaryotic and eukaryotic genetics. Mendelian inheritance, polygenic inheritance, linkage and mapping, chromosome aberrations, population genetics, evolution, DNA structure and replication, gene expression, mutation, gene regulation, extra-nuclear inheritance, bacterial and viral genetics, and recombinant DNA technology.			
General Biology: Introduction to structural organization of cells and organisms, plant biology, animal biology, basic genetics, introduction to evolution, biological diversity, and classification of life forms.			
Molecular Biology: General principles governing the structures, synthesis, and functions of DNA, RNA, and proteins in the context of the cell, genome organization, DNA replication and transposition, chromosome segregation, transcription and translation, the processing of macromolecules, signal transfer, and regulation.			

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Academic Study Area	No. of Credits Claimed: UNDERGRAD	No. of Credits Claimed: GRADUATE	Course Number(s), Title(s), Institution and Year
Cell Biology: Cellular and molecular basis of life, flow of energy in cells, flow of genetic information, signal transduction, regulation of gene expression, bioenergetics, and the structure and function of cells, organelles, membranes, macromolecules, and proteins. <i>Please note if this course covered "Recombinant DNA"</i>			
Microbiology: History of microbiology, microbial growth and metabolism, microbial diversity, and the importance of microbes in the environment, industry and medicine, microscopy, aseptic technique, staining, and the isolation, culture and identification of microbes.			
Molecular Genetics: Chromosome structure mutation, transfer of genetic information, DNA replication, recombination, transcription, translation, and regulation of gene activity.			
General Chemistry: Electronic structure of atoms and chemical bonding, stoichiometry and the concept of the mole, behavior of gases, liquids, and solids, principles and application of chemical equilibrium, oxidation-reduction, electrochemistry, thermochemistry, kinetics, acids and bases, elemental chemistry.			
Organic Chemistry: Organic chemical nomenclature, molecular bonding, resonance theory, molecular reactivity, techniques for the preparation, isolation, purification, and characterization of organic compounds, functional group chemistry, stereochemistry.			
Analytical Chemistry: Fundamentals of analysis of chemical systems, theory and practice of volumetric, potentiometric and colorimetric methods, statistical treatment of data and error analysis, instrumental methods of chemical analysis.			

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Academic Study Area	No. of Credits Claimed: UNDERGRAD	No. of Credits Claimed: GRADUATE	Course Number(s), Title(s), Institution and Year
Biometrics: Simple distribution, statistical inference, simple regression theory, experimental design, analysis of variance and co-variance as related to biology.			
Genetic Data Analysis: Analysis of discrete data, illustrated with genetic data on morphological characters, allozymes, restriction fragment length polymorphisms, and DNA sequences. Maximum likelihood estimation, including iterative procedures. Numerical resampling. Development of statistical techniques for characterizing genetic disequilibrium and diversity. Measures of population structure and genetic distance. Construction of phylogenetic trees. Finding alignments and similarities between DNA sequences. Locating genes with markers.			
Population Genetics: Theoretical population genetics and its relationship to natural and experimental populations. Single locus and multilocus systems, history of a gene in a population, diffusion approximations, suitability of models to natural and experimental populations.			
Genetic Statistics: Migration, mutation, selection, drift, linkage, mating system and other processes bearing on rates of change in population frequencies, means and variances, magnitude and nature of genotypic and non-genotypic variability and their role in alternative procedures of plant and animal breeding, experimental and statistical approaches to the analysis of quantitative inheritance.			
General Statistics: Probability theory, collecting and describing data, hypothesis testing, correlation and regression, and analysis of variance. Frequency distributions. The addition and multiplication laws of probability; conditional probability and Bayes Rule. Statistical inference using sampling and distributions, standard errors and confidence limits. Common uses of z, t, chi-square and F tests and nonparametric tests including tests of hypothesis for the mean, median or proportion of a single population or for the difference between two or more populations, goodness-of-fit tests and tests of difference between two population distributions.			

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SECTION 3

Section 3 is designed to report any internship that is *directly related to forensic DNA analysis.*

Please check any applicable statement and follow those up with Internship Information:

- I have completed a DNA internship at an ASCLD/LAB (Association of State Crime Laboratory Directors) accredited laboratory.
- I have completed an internship (other than in DNA analysis) at an ASCLD/LAB accredited laboratory.
- I have completed an internship with a focus on DNA analysis in a controlled laboratory environment.

Internship Information:

Dates of Internship	Name of Hosting Lab (if applicable) and Name of DNA Analyst Proctor or Supervisor	List Topics Covered During Internship

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SECTION 4 - EDUCATION, TRAINING AND EXPERIENCE INVENTORY

Section 4 lists typical activity experiences that are related to one or more of the job duties of the forensic DNA Analyst. Please read each item in the Activity Table carefully and select the letter from the Response Criteria Table that best represents your experience related to each item. Enter the letter in the Activity Table in the appropriate column opposite the activity. You must enter a letter in both the EOT (Education or Training) *and* the PWE (Professional Work Experience) column for each activity. Any blank lines in the Activity Table will be considered to have a letter A. **During a later phase of the selection process you may be asked to substantiate any claim that you make.**

RESPONSE CRITERIA TABLE			
Education or Training (EOT)		Professional Work Experience (PWE)	
A	I have not been trained to perform this task or activity.	I have not performed this task or activity.	A
B	I have informal training or on-the-job training on performing this task or activity (i.e., self-taught)	I have assisted others in the performance of this task or activity or performed it under close supervision.	B
C	I have formal classroom training on performing this task or activity (i.e., college, technical college).	I have performed this task or activity independently.	C
D	I have earned academic credit for an internship or practicum where the primary focus was the performance of this task or activity.	I have lead or trained others in performing this task.	D

TASK OR WORK ACTIVITY TABLE				
#	EOT	EVIDENCE EXAMINATION/SEROLOGY	PWE	#
1		Evidence examination for the presence of biological material?		2
3		Performed evidence screening with an Alternate Light Source?		4
5		Performed screening tests for blood (Leucomalachite green or phenolphthalein)?		6
7		Performed screening test for semen (acid phosphatase)?		8
9		Performed Christmas Tree Stain and microscopic examination for spermatozoa?		10
11		Performed immunodiffusion tests (outerlony or ABA/Seratec Card)?		12
13		Performed microscopic hair examinations?		14
DNA/FORENSIC LABORATORY ACTIVITIES				
15		Extracted DNA using Chelex resin or a similar process?		16
17		Extracted DNA using organic solvents (phenol/chloroform or similar)?		18
19		Purified DNA using ethanol precipitation?		20

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#	EOT	DNA/FORENSIC LABORATORY ACTIVITIES (CONT.)	PWE	#
21		Purified DNA using filtration (Microcon or similar)?		22
23		Purified DNA using magnetic beads (Promega's DNA IQ or similar)		24
25		Purified DNA using robotic systems (Qiagen EZ1, Maxwell 16, or similar)?		26
27		Quantified DNA using real time PCR?		28
29		Quantified DNA using slot blots?		30
31		Used an ABI 7000 or 7500 Real Time PCR System?		32
33		Performed capillary electrophoresis?		34
35		Used capillary electrophoresis to detect PCR products?		36
37		Developed new DNA probes or primers?		38
39		Performed DNA sequencing using manual detection techniques?		40
41		Performed DNA sequencing using automated DNA sequencing programs?		42
43		Performed DNA amplification?		44
45		Used an ABI 480, 2400, 9600, 9700 or 9800 thermal cycler?		46
47		Used fluorescent techniques to detect PCR products?		48
49		Used ABI Profiler Plus, Cofiler and/or Identifiler detection kits?		50
51		Used Promega Powerplex detection kits?		52
53		Used an ABI 310, 3100, or 3130 genetic analyzer?		54
55		Used an ABI 377 or 3700 genetic analyzer?		56
57		Analyzed samples for short tandem repeat/microsatellite profiles?		58
59		Analyzed samples for mitochondrial DNA?		60
61		Worked with bacterial/viral DNA?		62
63		Worked with human DNA?		64
65		Worked with DNA from other sources?		66
67		Worked in a forensic laboratory?		68
STATISTICS				
69		Performed population genetics statistical calculations?		70
71		Calculated likelihood ratios?		72
73		Used Bayesian statistics to calculate mixed population frequencies?		74
75		Calculated paternity indices?		76

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#	EOT	COMPUTER AND MISCELLANEOUS ACTIVITIES	PWE	#
77		Used PC compatible computers?		78
79		Used Apple Macintosh computers?		80
81		Used Apple Macintosh computers for data acquisition and analysis software?		82
83		Used database programs?		84
85		Used spreadsheet programs?		86
87		Used GeneScan/Genotyper DNA analysis software?		88
89		Used GeneMapper DNA analysis software?		90
91		Used an expert system to analyze DNA data		92
WRITTEN AND ORAL COMMUNICATION ACTIVITIES				
93		Made a non-oral presentation at a scientific conference, meeting or seminar?		94
95		Made an oral presentation on a technical subject before more than 20 people?		96
97		Made an oral presentation on a non-technical subject before more than 20 people?		98
99		Independently designed scientific experiments?		100
101		Initiated and directed a scientific research project?		102
103		Participated in a scientific research project, not as the leader?		104
105		Published anything in a scientific journal?		106
107		Been an author on a peer reviewed scientific article?		108
109		Been the primary author on a peer reviewed scientific article?		110
111		Developed scientific analytical protocols?		112
113		Developed laboratory quality assurance protocols?		114
115		Developed laboratory safety procedures, rules or regulations?		116
117		Developed laboratory training programs?		118
119		Testified as an expert witness in a court of law?		120