NOTICE OF

REGULAR CIVIL SERVICE COMMISSION MEETING

Urbana City Building

Executive Conference Room

400 South Vine Street

Urbana, Illinois

Those wishing to attend should dial 128 on the phone located next to the 2nd floor security door.

Wednesday, August 28, 2013 at 10:00 a.m.

<u>AGENDA</u>

1. Call to order and roll call.

2. Approval of minutes: May 2, 2013.

3. Additions to agenda.

4. Public comment.

   Each person wishing to speak before the Civil Service Commission on any matter shall approach the Civil Service Commission, give name and address, and limit comments to 5 minutes. State law generally precludes the Civil Service Commission from acting upon any topic initially presented during oral communications. Your information may be received, placed on the next agenda or referred to the Chief Examiner.

5. Action Items.

   A. Certify Fire Captains Promotional List.

   B. Request to establish subjective evaluation categories for Firefighter oral interviews.

   C. Request to revise the specification and pay grade for the classification for Public Arts Coordinator.

   D. Request to revise the specification and pay grade for the classification for Redevelopment Specialist.

   E. Request to revise the specification for the classification for Animal Control Officer.

   F. Request to post Public Arts Coordinator.

   G. Request to post Animal Control Officer.

   H. Request to certify Meter Maintenance Technician transfer.

   I. Request to establish a passing score for Firefighter written exam.

6. Informational Items.

7. Other Business

8. Adjournment.

Vacellia Clark

Chief Examiner

In compliance with the Americans with Disabilities Act (ADA): Persons with a disability may request a reasonable accommodation by contacting Todd Rent, the City of Urbana's ADA Coordinator, in person or in writing at 400 S. Vine Street, Urbana, Illinois 61801; by telephone at 217-384-2466 or TTY 217-384-2447; or by email at terent@urbanaillinois.us. Notification of at least 48 hours prior to the meeting or time when services are needed will assist the City staff in assuring that reasonable arrangements can be made to provide accessibility to the meeting or service.

I hereby certify that the agenda for the above stated Meeting(s) was posted at the Urbana City Building, 400 S. Vine St., on Friday, August 23, 2013 at 2:00 p.m.

_____

Attest: Elizabeth Borman, Asst. Human Resources Mgr.

A meeting of the Civil Service Commission (the "*Commission*") of the City of Urbana, an Illinois municipality (the "*City*"), was held on May 2, 2013 in the Executive Conference Room of Urbana City Hall.

Commission Members: Present: Willard Broom and Marion Knight**.** Absent: none

Staff Present: Present: Vacellia Clark, Civil Service Commission Chief Examiner and Elizabeth Borman, Assistant Human Resources Manager.

Others Present: Carol McKusick

Proceedings
Commissioner Broom called the meeting to order at 10:05 a.m. and Ms. Borman recorded the minutes. A quorum of commissioners were present, and the meeting, having been duly convened, was ready to proceed with business.

Approval of Minutes
Staff presented to the Commission the minutes of the March 28, 2013 meeting of the Commission for approval, whereupon motion duly made by Commissioner Broom, seconded by Commissioner Knight and unanimously adopted, the minutes were approved as presented.

Additions to the Agenda
There were none.

Public Participation
Carol McKusick addressed the Commission on the topic of draft meeting minutes.

Action Items

A. **Passing Exam Score for Police Services Representative**
   Staff reported on the Civil Service exam for Police Services Representative held on April 20, 2013 in Champaign: 160 individuals applied and a total of 97 applicants attending testing. Staff recommended establishing a passing score of 70 percent for the Phone Skills test and 50 percent for each component of the Office Skills test. At these passing points, 24 applicants would be placed on the Civil Service register for the position. Commissioner Broom moved for approval and Commissioner Knight seconded. Motion passed.

B. **Job Description Changes for Animal Control Officer**
   Staff recommended approval of the revised job description for Animal Control Officer. After review and discussion, the Commission requested clarification on the function of Hearing Officer as it relates to the position. Commissioner Broom moved for approval and Commissioner Knight seconded. Motion passed.

C. **<u>Job Description for Financial Crimes/Crime Scene Investigator</u>**

Staff recommended approval of the job description for the newly-created Financial Crimes/Crime Scene Investigator position in the Police Department. After review and discussion, Commissioner Knight moved for approval provided the minimum requirements for education and/or experience be amended to match that of the Entry-Level Police Officer job description. Commissioner Broom seconded. Motion passed.

D. **<u>Approve Appointment for Arbor Technician</u>**

Staff recommended the Commission approve the request to appoint John Marlin as Arbor Technician. Commissioner Knight moved for approval and Commissioner Broom seconded. Motion passed.

Adjournment

There being no further business to come before the meeting, the meeting was adjourned at 10:35 a.m.

Respectfully submitted,

_____
Elizabeth Borman, Recording Secretary

Memorandum

Human Resources Division

TO:	Vacellia Clark, Chief Examiner Civil Service Commission
FROM:	Human Resources Staff
RE:	Certification of Fire Captains Promotional List
DATE:	August 28, 2013

Action Requested

That the Civil Service Commission certify the promotional register for Fire Captains.

Authority

In accordance with Civil Service Rule 8.2 (B), *"Certification from Registers: Internal Registers,"* the Commission shall certify a pool of all candidates on the applicable internal register, except where referral is limited by Statute, Ordinance, or Civil Service Rules.

Background

The Urbana Fire Department, in consultation with Resource Management Associates, conducted promotional examinations for the position of Captain in June 2013. Per the collective bargaining unit agreement with the Local #1147 of the International Association of Fire Fighters, AFL-CIO, Urbana, Illinois (hereinafter referred to as the "Union"), the examination process consisted of a written examination that constituted 40 percent of the overall score, an assessment center which counted for 60 percent of the overall score, seniority points and Fire Officer Bonus Points.

Recommendation

That the Civil Service Commission certify the promotional register for Fire Captains as presented.

Memorandum

Human Resources Division

TO: Vacellia Clark, Chief Examiner
Civil Service Commission

FROM: Human Resources Staff

RE: Establishing Subjective Evaluation Categories for Firefighter Oral Interviews

DATE: August 28, 2013

Action Requested

That the Civil Service Commission approve the subjective evaluation categories for Firefighter oral interviews.

Authority

In accordance with 65 ILCS 5/10-1-7.1 (d), the Commission may determine merit criteria for the subjective component of the examination process.

Background

As noted in the Firefighter Hiring Act (65 ILCS 5/10-1-7.1 (d)), the Civil Service Commission may establish the criteria for the subjective component of the Firefighter examination process. Per this statute, the initial eligibility list will be determined by the following: (i) the person's score on the written examination, (ii) the person successfully passing the physical ability component (graded on a pass/fail basis), and (iii) the person's results on any subjective component. The examination components for an initial eligibility register will be evaluated on a 100-point scale. The subjective evaluation component will count for 60 percent of the composite score and the written exam will comprise the remaining 40 percent, as approved by the Commission on March 28, 2013.

Recommendation

Staff recommends the Commission approve the following criteria for the subjective evaluation component. These criteria will be incorporated into the process using open-ended, behavioral-style interview questions:

- Communication Skills
- Motivation and Initiative
- Teamwork
- Service Orientation
- Role Adaptability, Problem Solving and Critical Thinking
- Human Relations/Interpersonal Skills and Respect for Diversity
- Demonstrated knowledge/preparation
- Overall Impression

Basis for Recommendation

- Communication Skills
  Ability to transfer a thought or idea to others through oral, written and non-verbal processes. Presents self in positive manner; is persuasive and provides clear explanations of complicated problems or technical information when speaking before groups of people of various backgrounds and educational levels. Uses appropriate gestures, facial expressions and body language to assist in communicating.

- Motivation and Initiative
  An applicant with motivation and initiative will demonstrate a consistent ability to assess and act independently and have a history of doing more than just what is required, and consistently exceed expectations.

- Teamwork
  Applicant demonstrates ability to work cooperatively with others, shows respect for different opinions, customs, and individual preferences, feels a sense of responsibility for the groups he/she is involved in, and communicates well in both offering positive and constructive feedback.

- Service Orientation
  Applicant actively looking for ways to help people and demonstrates empathy. The applicant demonstrates a willingness to go above and beyond the call of duty to help others and resolve their problems and feels a personal sense of achievement when others are helped.

- Role Adaptability, Problem Solving and Critical Thinking
  An adaptable applicant will demonstrate the ability to change to fit a situation or circumstance. An applicant with problem-solving and critical thinking skills will be able to show an ability to use knowledge, facts, and data to apply good judgment and demonstrates common sense to effectively solve problems.

- Human Relations/Interpersonal Skills and Respect for Diversity
  Applicant demonstrates the ability to establish and maintain effective working relationships with a variety of people in a variety of situations. Interacts with people in a tactful and diplomatic manner which does not arouse antagonism or negative feelings in others. Understands the impact of self on others and treats individuals in a fair, consistent and impartial manner. Demonstrates an understanding of the emotions and motives of others. Deals with conflict in an open, positive and impartial manner, with due recognition for individual differences. Shows ability to really listen to others and understand their point of view. Has experience working with people from different backgrounds.

- Demonstrated knowledge/preparation
  The applicant taken initiative to become engaged in his/her community, pursue educational opportunities, etc. and has the applicant taken the time to learn about the UFD, including participating in ride-along opportunities.

- Overall Impression
  Candidates will be rated on the overall impression they have made, with the following traits in particular taken into consideration: teamwork, motivation,   commitment to the profession, positive attitude, self-confidence, self-discipline, enthusiasm, integrity, and self-awareness.

DEPARTMENT OF COMMUNITY DEVELOPMENT SERVICES

Administrative Division

m e m o r a n d u m

TO: Urbana Civil Service Commission

FROM: Elizabeth H. Tyler, Ph.D., FAICP, Community Development Director

Cc: Vacellia Clark

DATE: August 22, 2013

SUBJECT: Reclassification of Public Arts Coordinator Position

_____

Introduction

The Community Development Services Department is requesting a reclassification of the Public Arts Coordinator position to bring it more in line with other similar positions within the Economic Development Division of the Community Development Services Department and with other positions in the Department as a whole.

Discussion

Currently, the Public Arts Coordinator has a norm hourly rate of $20.50. By moving this position up three levels to a norm rate of $25.20, it will be in line with the Market at the Square Director/Marketing Coordinator position within the Economic Development Division, and in line with the Housing Inspector, Planner II, and Grants Coordinator II positions in other divisions of the Community Development Services Department. A concurrent request is also being made to bring the Redevelopment Specialist position into this norm rate, with a new title of Economic Development Coordinator.

In recent years, the Public Arts Coordinator position has become a much more prominent and important position at the City and in the community as a whole. In addition to other duties, the position is responsible for the preparation and management of multiple contracts/agreements, supervision of Public Arts interns, coordination of several community events, staffing of the Public Arts Commission and the management of high-profile projects, such as the public art components of the Boneyard Creek park and a planned installation at King Park to celebrate the legacy of the Reverend Dr. Martin Luther King, Jr.. The position has also been able to achieve numerous grants and fundraising efforts, and has received recognition Statewide for best practices in the growing field of public art. The Public Arts Coordinator position has also grown in its importance as an economic development tool for the City of Urbana in attracting and

hosting major cultural events and venues to the community. As the importance and duties of this position have grown, it is apparent that its current pay grade is not in line with these responsibilities and with other similar positions within the Economic Development Division, Community Development, and in the City as a whole.

Reclassifying the Public Arts Coordinator position will more accurately reflect the position's responsibilities and duties, and will provide for a more equitable structure within the Division and Department.

Fiscal Impact

The Public Arts Coordinator position is funded by Tax Increment Finance District #1 (TIF 1). Recurring annual revenues in TIF 1 are projected to exceed recurring expenses, leaving sufficient capacity in TIF 1 to cover the position reclassification. There would be no negative fiscal impact upon the City.

Recommendation

Staff recommends that the Civil Service Commission approve the requested pay grade adjustment for the Public Arts Coordinator position.

TO: Urbana Civil Service Commission

FROM: Elizabeth H. Tyler, Ph.D., FAICP, Community Development Director

Cc: Vacellia Clark

DATE: August 22, 2013

SUBJECT: Reclassification of and Title Change for Redevelopment Specialist Position

---

Introduction

The Community Development Services Department is requesting a reclassification of the Redevelopment Specialist position to bring it more in line with other similar positions within the Economic Development Division of the Community Development Services Department and with other positions in the Department as a whole. The Department is also requesting a title change to "Economic Development Coordinator" to better describe the functions of the position and again to bring it into conformity with other similar positions in the Economic Development Division and in the Community Development Services Department as a whole.

Discussion

Currently, the Redevelopment Specialist has a norm hourly rate of $20.50. By moving this position up three levels to a norm rate of $25.20, it will be in line with the Market at the Square Director/Marketing Coordinator position within the Economic Development Division, and in line with the Housing Inspector, Planner II, and Grants Coordinator II positions in other divisions of the Community Development Services Department. A concurrent request is also being made to bring the Public Arts Coordinator position into this norm rate.

The proposed title change to "Economic Development Coordinator" would more accurately describe the activities performed by this position in coordinating a variety of economic development activities for the city, and would be consistent with similar positions, including Public Arts Coordinator, Market at the Square Director/Marketing Coordinator, and Grants Coordinator.

In recent years, the Redevelopment Specialist position has become a much more prominent and important position at the city and in the community as a whole. Among other important duties, the position is responsible for the coordination of the development and redevelopment activities in our established redevelopment areas, including downtown Urbana, North Cunningham Avenue, and University Avenue. The position also works with businesses along Philo Road and other commercial areas. This position manages the City's extensive business assistance programs. This involves regular contact with members of the business community, negotiating incentives and redevelopment agreements with developers, ensuring City compliance with state economic development programs, and continuing education related to the evolving regulatory framework and best practices related to economic development programs. The position serves as our official administrator for our Tax Increment Finance Districts as well as for our Enterprise Zone. As the importance and duties of this position have grown, it is apparent that its current pay grade is not in line with these responsibilities and with other similar positions within the Economic Development Division, Community Development, and in the City as a whole.

Reclassifying and retitling the Redevelopment Specialist position will more accurately reflect the position's responsibilities and duties, and will provide for a more equitable structure within the Division and Department.

Fiscal Impact

The Redevelopment Specialist position is currently funded by Tax Increment Finance District #3 (TIF 3) and Tax Increment Finance District #4 (TIF 4). When TIF 3 expires in December 2013, the position will be fully funded by TIF 4. Recurring annual revenues in TIF 4 are projected to exceed recurring expenses, leaving sufficient capacity in TIF 4 to cover the position reclassification. There would be no negative fiscal impact upon the City.

Recommendation

Staff recommends that the Civil Service Commission approve the requested pay grade adjustment and title change for the Redevelopment Specialist position.

TO: Vacellia Clark, Chief Examiner
            Civil Service Commission

FROM: Human Resources Staff

RE: **Request to Revise Animal Control Officer job description**

DATE: August 28, 2013

Action Requested

The Civil Service Commission approves the revisions to Animal Control Officer job description.

Authority

In accordance with the Urbana Civil Service Rules and Regulations – Rule 2.5 ("*Changes in Duties*") and Urbana City Policy 2.1 ("*Establishing and Revising Positions*"), recommendations for job descriptions revisions that change the qualifications shall be submitted to the Civil Service Commission for approval.

Background

The Urbana Civil Service Commission approved a number of changes to the Animal Control Officer job description on May 2, 2013. In the time since, the current Animal Control Officer has requested transfer to the Meter Maintenance Technician position. In anticipation of posting the vacancy, Police Department Command Staff, in consultation with the employee who served as Animal Control Officer for 13 years, have recommended that additional modifications be incorporated.   The most substantial changes are to increase the minimum requirements from one year of prior professional or volunteer animal handling experience to two years of experience and to require successfully completion of the National Animal Control Association Level One certification within one year of hire. Additionally, "animal handling experience" has been specifically defined.

Basis for Recommendation

HR staff respectfully requests that the Civil Service Commission approve the Animal Control Officer job description revisions as proposed.

Basis for Recommendation

- Given the complexity of the nature of this work, Police Command do not view this as an entry-level position. In addition, management and AFSCME have recently reclassified the pay grade for this position from $17.83/hr. to $20.64/hr., which supports the desire for increased qualifications.

- National Animal Control Association Level One certification is the recommended basic class for Animal Control Officers at the federal, state, and local levels.

Attachments

- Animal Control Officer job description with changes.
- National Animal Control Association Level One certification information.

CITY OF URBANA
Human Resources Division

ANIMAL CONTROL OFFICER

JOB DESCRIPTION

Division: Patrol
Department: Police
Reports To: Patrol Lieutenant
FLSA Status: Non-Exempt
Job Type: Full-Time, Civil Service, AFSCME

JOB SUMMARY

This position is characterized by performing specialized work in the enforcement of ordinances/statutes relating to control of animals within the City of Urbana. Work involves enforcing animal control ordinances; answering complaints; capturing/confining stray or unwanted animals; investigating animal bites/attacks; investigating animal cruelty or other animal-related violations; issuing summons and warrants; testifying in court and preparing various reports/records. This position is also responsible for the Abandoned Bicycle Program and serves as the coordinator for Safety Education Program (Risk Watch). Personnel occupying this position may be scheduled to work irrespective of weather conditions and/or when general City offices are closed.

ESSENTIAL FUNCTIONS

- Patrols City streets and captures domestic animals running at large; delivers captured animals to the Animal Control Facility. Must be able to deal with aggressive animals of all species.

- Issues warning notices and ordinance violation notices to the owners of animals running at large; contacts owners of impounded animals and arranges for their return.

- Maintain records of all vicious and dangerous domestic animals. The Hearing Officer for dangerous and vicious animal declarations.

- Responds to citizen complaints regarding all animals.

- Liaison for Department of Natural Resources, trapping and wild animal removal license.

- Responds to reports of sick or injured wildlife, emergency removal from living space.

- Responds to domestic injured animal calls and provides transportation to a veterinary facility.

- Maintains records of all animals captured and their disposition. Monitors intergovernmental records with Champaign County.

- Assists Champaign County Animal Control Officers when requested.

- Enforces Park District animal control ordinances.

- Enforces Urbana animal control ordinances on University of Illinois property within corporate limits of Urbana

- Arranges and accounts for animal traps used in the public.

- Cleans truck and equipment daily

- Investigates any animal cruelty complaints

- Performs other related duties as assigned, including abandoned bicycle program and safety education program (Risk Watch).

- Picks up abandoned bicycles and processes them. Makes arrangements for return to owner or proper disposal.

- Coordinates all Risk Watch Officers and assigns them to details in the schools.

- Coordinates all funding and purchasing for safety education materials.

- Conducts investigations and performs follow-up as needed; prepares affidavits to obtain search warrants; issues violation notices, summons, or warrants as appropriate; determines whether court action is appropriate; assists in preparing for court cases; attends court and testifies in court as needed.

JOB REQUIREMENTS

GENERAL

- Skills and ability to communicate with the public in a polite and professional manner; including handling citizen complaints concerning animal problems and animal owners that may be violating City of Urbana ordinances or State of Illinois Compiled Statutes.

- Physical strength flexibility and agility sufficient to perform work tasks outdoors in adverse weather conditions, including but not limited to lifting, carrying and otherwise moving animals weighing up to 70 lbs. in and out of the animal control vehicle, in and out of buildings, and various other spaces.

- Strong organizational skills and a willingness to be pro-active and accept new challenges.

- Proficient data entry and computer skills are required.

KNOWLEDGE & EXPERIENCE

- Knowledge of the geography of the City and of the street numbering system

- Knowledge of the physical appearance of various breeds of dogs and cats in order to make identifications from reported descriptions

- Knowledge of the laws and ordinances pertaining to animal control and humane treatment of animals.

- Knowledge in the use of animal control equipment and protective devices.

This position was last updated on 5/02/2013

- High school diploma or equivalent and at least ~~one~~ two (~~1~~2) years of professional or volunteer animal handling experience. ~~experience working with animals~~ "Animal handling experience" is defined as a veterinarian assistant, attendant at an approved kennel or animal shelter, animal control officer, or closely related occupation or activity. Any equivalent combination of experience and training which provides the required knowledge, skills, and abilities listed above may be substituted (such as working as a volunteer in an animal shelter or other animal rescue service).

- Working knowledge of record keeping, gathering of evidence, investigating, and issuing warnings, tickets, and summons regarding animal issues.

- Knowledge of principles and processes for providing excellent customer service.

PREFERRED QUALIFICATIONS

- Working knowledge ~~in~~ of zoonosis disease control and municipal animal control~~ and impoundment~~).

- Full-time, professional experience is strongly preferred.

ABILITY TO

- Handle animals safely; knowledge of the care and feeding of animals

- Operate City vehicles requiring State of Illinois Class D driver's license

- Understand and follow detailed oral and written instructions from police supervisors

- Perform strenuous and routine work.

- Maintain a valid Illinois driver's license and a safe driving record.

- Maintain harmonious and effective working relationships with other employees and respond to general public complaints.

- Project a positive and professional image of the City of Urbana.

- Comply with all policies and procedures of the City of Urbana and the Urbana Police Department.

- Communicate effectively both orally and in writing, including organized record keeping and report writing.

- Maintain a high level of self-motivation and initiative while working with little or no supervision.

- Learn, interpret, apply and enforce pertinent local laws, codes and regulations related to animal control and welfare.

LICENSES, CERTIFICATIONS AND MEMBERSHIPS REQUIRED

- Valid Illinois driver's license or be able to obtain one within 15 days of hire and a safe driving record.

- Within one year of hire you must have taken and passed the National Animal Control Association certification level one.

This position was last updated on 5/02/2013

RESPONSIBLE FOR:

- Communicating with supervisor, employees, other departments, law enforcement personnel, other animal control agencies, veterinarians, game wardens, Health Department staff, court officials, the public, violators, community organizations, and other individuals as needed to coordinate work activities, review status of work, exchange information, or resolve problems.

- Maintaining a comprehensive, current knowledge of applicable laws/regulations, maintaining an awareness of new methods, trends and advances in the profession, and attending workshops and training sessions as appropriate.

- Following safety procedures, utilizing safety equipment, and monitoring work environment to ensure safety of self, employees and other individuals.

- Maintaining a high level of professionalism when dealing with animals, pet owners, citizens and City employees.

CONTACTS: INTERNAL/EXTERNAL

- Frequent contact with public.

- Frequent contact with Police personnel and personnel from other City Departments.

- Frequent contact with outside agencies.

PHYSICAL DEMANDS

- While performing the duties of this job, the employee is regularly required to stand or sit, walk, use hands, fingers, handle, feel or operate objects, tools, or controls, reach with hands and arms and talk or hear. The employee is occasionally required to climb or balance, stoop, kneel, run, crouch, or crawl and follow animals long distances.

- Without assistance, safely and humanely lift animals, weighing up to 70 pounds, three feet off the ground and into cages in a truck.

- Effectively handle, control, and take custody of dangerous and/or injured animals.

- Specific vision abilities required by this job include close and distance vision acuity, peripheral vision, depth perception and the ability to adjust his or her focus, allowing a broad field of vision.

- Ability to operate a vehicle.

- Communicate clearly and effectively; must understand and be understood.

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable qualified individuals with disabilities to perform the essential functions.

WORK ENVIRONMENT

- While performing the duties of this job, the employee regularly works in outside conditions. The employee is occasionally exposed to wet and/or humid conditions, hot and/or cold conditions, or

This position was last updated on 5/02/2013

airborne particles. The noise level in the work environment is usually quiet in the office and may range from moderate to extreme in the field.

- This position will be exposed to loud noises and unpleasant sights, sounds, and odors when handling animals that are stray, injured, diseased, and dangerous.

- Flexibility is necessary as some nights and weekend work may be required.

The work environment characteristics described herein are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

SPECIAL EFFORT REQUIRED:

- Responds to emergency calls after normal work hours.

- A thorough background check will be required from all applicants who are offered employment.

The physical demands described herein are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

The duties listed above are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to the position.

The job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.

Prepared By: _____
                              Signature   Date

Approved By: _____
                              Department Head   Date

Approved By: _____
                              Personnel Mgr.   Date

Reviewed By: _____
                              Human Relations Officer   Date

Approved By: _____
                              Civil Service Commission   Date

This position was last updated on 5/02/2013

Home | About NACA | Membership | NACA News | Policies | Services | Store | Links

Frequently Asked Questions

Training

Bite Stick Workshop

Chemical Immobilization Workshop

Euthanasia Workshop

Pepper Spray Workshop

Annual Training Summit

Current NACA Training Schedule

Joseph Maniaci Scholarship

Hosting a NACA Training Academy

Comments

Resource Library

Contact Information

NACA 100 Training Academy

The National Animal Control Association (NACA) was formed in 1978 for the express purpose of assisting its members to perform their duties in a professional manner. NACA believes its most important contribution towards solving our domestic animal problems is to make available to Animal Control agencies and personnel a comprehensive training program.

Who Should Attend

This program is designed for Animal Control Officers at the federal, state, and local levels, Police Officers, and Sheriff's Deputies responsible for animal control and all of its many facets. In addition, those people interested in a career in the animal control/care field are welcome to attend. No previous animal control experience is required.

To be NACA certified as a Animal Control/Care Officer, please attend our Level 1 AND Level 2 training academy. NACA offers locations all over the United States. For a list of current training opportunities, follow this link:

http://www.nacanet.org/schedule.html

Please be aware that due to logistics and scheduling, NACA may not offer a program within your state. You may need to travel to a course near your location.

It is not necessary to have previous or current experience in Animal Control/Care to attend the Level 1 or 2 course. You must be 18 years of age to attend a NACA course.

Academy Information:

The National Animal Control Association Training Academy was designed to be delivered in two levels. Upon successful completion of Level I and Level II, the National Animal Control Association shall certify each participant and issue the appropriate documentation and pin. Successful completion of Level I and Level II shall include a minimum passing score of 80% on written examinations and mandatory attendance during all training.

Both Level I and Level II will be five days (40 hours) in length. In addition to the National Certification participants will be awarded Certificates of Completion.

The Level I curriculum will include the following:

- Animal Diseases/Zoonosis/Basic Cleaning
- Animal Identification
- Animal Injury Identification and First Aid
- Basic Investigations
- Basic Law Overview (Constitutional Law/Civil Liability)
- Capture Techniques
- Case Report/Evidence Collection/Citation Preparation
- Crises Intervention/Officer Safety
- Companion Animal Behavior
- Courtroom Presentation and Testimony
- Ethics and Professionalism
- Euthanasia Overview
- Rabies/Quarantine Issues
- Shelter Operations

Each day begins at 7:30 am and ends at 4:00 or 5:00 pm, except on Friday when class ends at 12:00 pm (noon).

Tuition

Tuition for Level I will be $525.00 per participant.

Click here for the current NACA Training Schedule.

For any additional questions please check out our FAQ or email naca@nacanet.org.

TO: Vacellia Clark, Chief Examiner
           Civil Service Commission

FROM: Human Resources Staff

RE: **Request to Post Public Arts Coordinator and Animal Control Officer Jobs and Establish Minimum Requirements**

DATE: August 28, 2013

Action Requested

That the Civil Service Commission approve (separately) posting the Public Arts Coordinator and Animal Control Officer job vacancies and establish the minimum requirements as set forth in the respective job descriptions.

Authority

In accordance with the Urbana Civil Service Rules and Regulations – Rule 6.1 ("*Minimum Qualifications*"), the authority to announce examinations for classified positions and affix minimum qualifications for applicants is vested with the Commission.

Background

Within the last month, the current Public Arts Coordinator has accepted a position with the City and County of Denver, Colorado and the current Animal Control Officer has requested a transfer within the AFSCME bargaining unit to a vacant Meter Maintenance Technician position. The respective managers have requested that both positions be filled as soon as possible.

Recommendation

HR staff respectfully requests that the Civil Service Commission approve announcing examinations for these classified positions and e establish the minimum requirements as set forth in the respective job descriptions.

Memorandum

Human Resources Division

TO:	Vacellia Clark, Chief Examiner Civil Service Commission
FROM:	Human Resources Staff
RE:	**Request to Establish a Preliminary Firefighter Eligibility Register**
DATE:	August 28, 2013

Action Requested

City of Urbana Human Resources staff recommends the Commission establish a preliminary Firefighter Eligibility Register based on candidates successfully passing the physical ability component and a written examination score of 80.0% or higher. This will result in a preliminary eligibility list of 52 candidates.

Authority

In accordance with 65 ILCS 5/10-1-7.1 (Illinois Firefighter Hiring Act) and Rule 7.02 of the Urbana Civil Service Commission's *Firefighter Hiring Rules*, the local appointing authority/commission may prescribe the written examination passing score, provided that the score is not be less than the median score.

Background

I. Recruitment

Applications for Firefighter were accepted online from April 4 – July 5, 2013. A total of 179 unique applications were received; of those, 157 were invited to test. Of the remaining 22 applicants not invited to test, 20 were disqualified for not following rules for submission or submitting an incomplete application, and two did not meet the minimum requirements. No adverse impact was observed regarding those not invited to test. A summary of the demographic composition of each step of the process can be found in Exhibit 1 of this report.

Applicants[1]	179	Males: 167	Non-Minorities: 143
		Females: 3	Minorities: 24
Rejected[2,3]	22	Males: 20	Non-Minorities: 14
		Females: 0	Minorities: 6
Invited to Test	157	Males: 148	Non-Minorities: 130
		Females: 3	Minorities: 18
Failed to Appear at Test/ Withdrew[4]	22	Males: 20	Non-Minorities: 16
		Females: 0	Minorities: 3

---

[1] Nine applicants did not identify a specific gender and 12 did not identify a specific race/ethnicity.

[2] Reasons for rejection were: "01 – Didn't follow rule for submission/Incomplete Application" and "11NMQ – Does not meet minimum qualifications (age/driver's license/not a citizen or unauthorized to work in U.S.)."

[3] Two applicants did not identify a specific gender or race/ethnicity.

[4] Three applicants did not identify a specific race/ethnicity and two did not identify a specific gender.

II. Testing Process

The written examination was offered on two dates: Saturday, July 20 at the Alice Campbell Alumni Center and Friday, July 26 at the Urbana Civic Center, both of which are located in the city of Urbana. A total of 135 applicants appeared for the exam over these two days. The written exam used was the National Fire Select Test developed by Fire & Police Selection, Inc. (FPSI), which covers the following subjects: reading ability, mechanical aptitudes, mathematical reasoning, writing abilities, personality traits and other constructs identified as critical to job performance in this field. The company, FPSI, is associated with Biddle Consulting Group, Inc., a company with over 35 years of experience in fire and police testing and currently one of the top EEO consulting firms in the United States; additionally, this test has been validated to meet the requirements of the Uniform Guidelines on Employee Selection Procedures (1978).[5]

Under the Firefighter Hiring Act, the passing score for the written examination must be set "at or above the median score for all applicants participating in the written test."[6] The median score, which is defined as "the middle number of a group of numbers; that is, half the numbers have values that are greater than the median, and half the numbers have values that are less than the median for all applicants," for this exam is 78.338%.[7]

III.   Preliminary Eligibility List

The Act further allows for the creation of three eligibility registers: the preliminary eligibility register, the initial eligibility register and the final eligibility register. The preliminary eligibility register can be established upon an applicant's passage of the written examination <u>or</u> the passage of the written examination *and* the physical ability component:

> *(g) Scoring of examination components. Appointing authorities may create a preliminary eligibility register. A person shall be placed on the list based upon his or her passage of the written examination or the passage of the written examination and the physical ability component. Passage of the written examination means a score that is at or above the median score for all applicants participating in the written test.[8]*

Applicants have received multiple extensions to complete the physical ability component of the exam. At the time of the exam, no applicant stated that he/she would be unable to complete the CPAT and Ladder Climb later that mid-August.

<u>Recommendation</u>
Staff recommends the Commission establish a preliminary eligibility list based on successfully passage of the physical ability component and a written examination score of 80.0% or higher. Successful passage of the physical ability component is defined as specified in the Firefighter Exam Announcement, which is providing proof of completing the Candidate Physical Ability Test (CPAT) and Ladder Climb test as administered by a facility licensed by the International Association of Fire Fighters no more than 12 months prior to the written exam date (July 20, 2013).[9] Given that applicants have had four (4) months to complete this portion of the exam, staff recommends that no further extensions of the physical ability component be provided.   A comparison of each option is provided in Exhibit 2 of this report. Adverse impact reports for each option are provided in Exhibit 3 of this report.

---

[5] "Frequently Asked Questions About National Fire Select Program." *National Firefighter Testing*. Fire & Police Selection, Inc. (FPSI), n.d. Web. 8 Aug. 2013. <https://www.nationalfireselect.com/index.html>.

[6] 65 ILCS 5/10-1-7.1(g).

[7] Microsoft, http://office.microsoft.com/en-us/excel-help/calculate-the-median-of-a-group-of-numbers-HP010070501.aspx

[8] Ibid.

[9] Urbana Civil Service Commission, (2013). Firefighter Hiring Rules. *Rule 2.03: Physical Requirements,* 6.

Basis for Recommendation

1. <u>Establishing a passing score at 80.0% provides for a robust candidate pool with no adverse impact</u>. A passing score at 80.0% will result in a total of 52 candidates proceeding to the subjective portion of the evaluation, seven (7) of whom are minorities and one of whom is female.

2. <u>Establishing a passing score at the median would result in a process that would exhaust personnel and financial resources</u>. Setting the passing score at the median (77.338%) would result in a preliminary register of 81 individuals and by law, all must complete the subjective evaluation for placement on the subsequent initial eligibility list. The interview panel recommended to complete the subjective portion of the process will consist of current Urbana Firefighters as well as a community member. Firefighters will require overtime compensation for their time on the panel, as well as additional departmental staffing to fill their void on the crew. The community member may also need to request time off from work or other activities that he/she has previously committed to. Assuming that six interviews will occur each day, achieving 81 interviews will require nearly three straight weeks of interviews. Although setting the passing score at this point would add three additional minority candidates, staff does not believe this would outweigh the encumbrance of so many interviews, nor could this schedule realistically occur given the personnel and financial limitations the affected parties would face.

3. <u>Establishing a passing score higher than 80% would result in an insubstantial eligibility list</u>. The next-highest logical passing point would be 83 percent, which would result in an eligibility list of 29 candidates. Assuming that some candidates will self-select out of consideration due to other job offers, changes in plans and other life events, the actual pool of eligible names to last through the two-year life cycle of the final eligibility list will likely be even smaller. Thus, eliminating nearly 80 percent of the applicant pool so early would be neither cost-effective nor practical. Additionally, staff has observed in the past that many candidates who may have received an incrementally smaller score on the written exam have excelled in the oral examination component of the selection process.

Next Steps

1. All applicants will be notified of their status by the end of the business day. Per state law, the results will be posted publically on the City's website.

2. Those applicants who meet or exceed the passing score will be invited to participate in interviews, which are scheduled throughout the month of September.

3. Staff plans to request Commission approval of the initial eligibility list at the October meeting.

Attachments

Exhibit 1: Statistical Analysis Summary
Exhibit 2: Options Grid
Exhibit 3: Adverse Impact Reports

Exhibit 1: Statistical Analysis Summary

	Applicants		Invited to Test		Attended Exam		80% Passing	
	#	%	#	%	#	%	#	%
Males	167	93%	148	94%	132	98%	51	98%
Females	3	2%	3	2%	3	2%	1	2%
n/a	9	5%	6	4%	–		–	–

	Applicants		Invited to Test		Attended Exam		80% Passing	
	#	%	#	%	#	%	#	%
Non-Minority	143	80%	129	82%	114	84%	45	87%
Minority	24	13%	18	11%	20	15%	7	13%
n/a	12	7%	10	6%	1	1%	–	–

Maximum score:	Median score:	Mean score:	Minimum score:
88.325%	78.338%	77.786%	54.488%

Exhibit 2: Options Grid

	Option 1	Option 2	Option 3
Description of Option	Passing Score at 80.0%	Passing Score at 77.338% (median)	Passing Score at 83.0%
Overall Assessment	Recommended: provides for a robust candidate pool with no adverse impact.	Would require that all 81 candidates participate in the subjective portion of the process. Benefits of a large register would not outweigh the tangible and intangible costs of staff resources dedicated to this one task.	Establishes an insubstantial list that would be neither cost-effective nor practical to last the two-year life span of the eligibility list.
# of candidates overall passing	52	81	29
Number of minorities and women passing	Minorities – 7 Women – 1	Minorities – 10 Women – 1	Minorities – 3 Women – 1
Adverse Impact?	No	Insignificant	Insignificant

Exhibit 3: Adverse Impact Reports

Disparate Impact Analysis
(an On-Line Internet based application)

HR-Survey.com
An Experienced Internet
Survey Consultancy

Instructions: Please fill out the information into the form below. Once you have entered your data below, you may select the types of analysis to be conducted by checking the appropriate boxes. Then press the compute button at the bottom of the form to view the results.

Select the type of employment decision: Selection ▼

Enter a title for your report: Passing Score of 77.338%

Number of Male		Number of Non-Minority		Number of Younger		Number of Non-Disabled	
132	Applicants	114	Applicants		Applicants		Applicants
80	Selected	70	Selected		Selected		Selected
Number of Female		Number of Minority		Number of Older		Number of Disabled	
3	Applicants	20	Applicants		Applicants		Applicants
1	Selected	10	Selected		Selected		Selected

☑-Adverse Impact
☑-Chi-Square
☑-Standard Deviation
☑-Confidence Intervals
☑ Probability Distribution

Select the Statistical Tests you wish to execute by checking or unchecking the boxes on the left. Then press the 'Compute' button below.

[Compute]

Display: ☑ Description of Statistic ☑ Interpretation of Results

Passing Score of 77.338%

Adverse-Impact Report

Adverse Impact and the "four-fifths rule." - A selection rate for any race, sex, or ethnic group which is less than four-fifths (4/5ths) (or eighty percent) of the rate for the group with the highest rate will generally be regarded by the Federal enforcement agencies as evidence of adverse impact. *Uniform Guidelines on Employee Selection Procedures*

Rate of Females Applicants Selected	Rate of Males Applicants Selected	Adverse Impact Ratio for Females	Adverse Impact Ratio for Males
(1/ 3) = 0.3333	(80/ 132) = 0.6061	(0.3333/ 0.6061)= 0.55	(0.6061/ 0.3333)= 1.82

The Adverse Impact Ratio for Females is less than 0.80.
Females Applicants are Selected at a rate less than 80% (4/5ths) of the rate that Males Applicants are Selected.

Rate of Minorities Applicants Selected	Rate of Non-Minorities Applicants Selected	Adverse Impact Ratio for Minorities	Adverse Impact Ratio for Non-Minorities
(10/ 20) = 0.5	(70/ 114) = 0.614	(0.5/ 0.614)= 0.81	(0.614/ 0.5)= 1.23

Adverse impact as defined by the 4/5ths rule was not found in the above data.

Chi-Square Report

Observed Expected	Selected	Not Selected	Row Totals
Males	80 79.2	52 52.8	132
Females	1 1.8	2 1.2	3
Column Total	81	54	135

Chi-Square = 0.9091
The value of the statistic is less than 3.841. This indicates that there is a 95 percent chance that these results have been obtained absent any form of bias. Therefore, you may conclude that these results fall within normal random variations and are not the result of bias.

Observed Expected	Selected	Not Selected	Row Totals

	70 68.0597	44 45.9403	114
Non-Minorities	70 68.0597	44 45.9403	114
Minorities	10 11.9403	10 8.0597	20
Column Total	80	54	134

Chi-Square = 0.9197
The value of the statistic is less than 3.841. This indicates that there is a 95 percent chance that these results have been obtained absent any form of bias. Therefore, you may conclude that these results fall within normal random variations and are not the result of bias.

Standard-Deviation Report

The difference between the proportion of the protected class Selected and the proportion of all Applicants Selected has a normal distribution with a mean and standard deviation. The statistic is shown below:

$$\frac{(r\ /\ n)\ -\ p}{sqrt(p\ *\ (1-p)\ /\ n)\ *\ sqrt(1-q)}$$

Analysis of proportion of Females Selected where:

- **r = number of Females Selected.**
- **n = number of Selected (Females and Males).**
- **p = proportion of Applicants that are Females.**
- **q = proportion of Applicants Selected.**

	Selected	Not Selected	Row Totals
Males	80	52	132
Females	1	2	3
Column Total	81	54	135

r = 1
n = 81
p = 3 / 135 = 0.022
q = (1 + 80) / (3 + 132) = 0.6

Standard Deviation Statistic = -0.953

These results show that the proportion of Females Selected is -0.953 standard deviations below the proportion of Applicants Selected. A result of less than 2 standard deviations is generally considered non-significant.

Analysis of proportion of Minorities Selected where:

- **r = number of Minorities Selected.**
- **n = number of Selected (Minorities and Non-Minorities).**
- **p = proportion of Applicants that are Minorities.**
- **q = proportion of Applicants Selected.**

	Selected	Not Selected	Row Totals
Non-Minorities	70	44	114
Minorities	10	10	20
Column Total	80	54	134

r = 10
n = 80
p = 20 / 134 = 0.149
q = (10 + 70) / (20 + 114) = 0.597

Standard Deviation Statistic = -0.959

These results show that the proportion of Minorities Selected is -0.959 standard deviations below the proportion of Applicants Selected. A result of less than 2 standard deviations is generally considered non-significant.

Confidence Interval Report

The proportion of the protected class Selected has an expected value that would fall within a specified confidence interval. The statistic is shown below:
Observed value = (r / n)
Expected value = p
Standard Deviation = sqrt(p * (1-p) / n) * sqrt(1-q)

Confidence Interval:
Lower Bound = p - 1.96 * Std Dev

Upper Bound = p + 1.96 * Std Dev

Analysis of proportion of Females Applicants Selected **where:**

- **r = number of Females Selected.**
- **n = number of Applicants Selected.**
- **p = proportion of Females among those Selected.**
- **q = proportion of Applicants Selected.**

r = 1
n = 81
p = (3/(3+132))=0.022
q = ((1 + 80)/(3 + 132))=0.6
(r/n)=1/81=0.0123

The lower bound of the confidence interval is: 0.022 -(1.96* 0.01)= 0.0019
The upper bound of the confidence interval is: 0.022 +(1.96* 0.01)= 0.0425

Confidence Interval = 0.0019 to 0.0425

These results show that the proportion of Females Females (r/n=0.0123) is contained in the confidence interval. Therefore a finding of disparate impact is not supported by this data.

Analysis of proportion of Minorities Applicants Selected **where:**

- **r = number of Minorities Selected.**
- **n = number of Applicants Selected.**
- **p = proportion of Minorities among those Selected.**
- **q = proportion of Applicants Selected.**

r = 10
n = 80
p = (20/(20+114))=0.149
q = ((10 + 70)/(20 + 114))=0.597
(r/n)=10/80=0.125

The lower bound of the confidence interval is: 0.149 -(1.96* 0.025)= 0.0997
The upper bound of the confidence interval is: 0.149 +(1.96* 0.025)= 0.1988

Confidence Interval = 0.0997 to 0.1988

These results show that the proportion of Minorities Minorities (r/n=0.125) is contained in the confidence interval. Therefore a finding of disparate impact is not supported by this data.

Probability Distribution Report

| Number Females Selected	Number Males Selected	Rate of Females Applicants Selected	Rate of Males Applicants Selected	Adverse Impact Ratio of Females	Adverse Impact against Females ?	Probability	Cumulative Probability
0	81	(0/3)	(81/132)	0	YES	0.061856	0.061856
Selected-> 1	80	(1/3)	(80/132)	0.55	YES	0.289058	0.350915
2	79	(2/3)	(79/132)	1.1139	NO	0.436315	0.787229
3	78	(3/3)	(78/132)	1.6923	NO	0.212771	1

Given that 81 were Selected from a pool of 132 Males and 3 Females it was possible to have Selected from 0 to 3 Females.

Adverse Impact would be found if you Selected 1 or fewer Females.

The probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is 0.3509 (the sum of the probabilities of having Selected 1 or fewer Females).

Since the probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is greater than 10%, an observed Adverse Impact may be not significant since the probability is greater than 1 in 10 that Adverse Impact would have occurred due to chance.

Probability Distribution of the variable: Number of Females Selected.
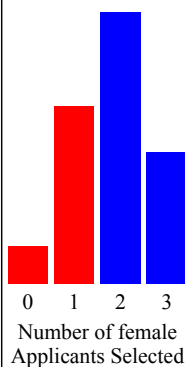
0   1   2   3
Number of female
Applicants Selected
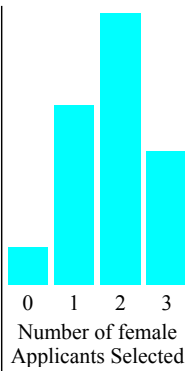
The probability distribution of having Selected from 0 to 3 Females is displayed above. As can be seen, the most likely event (highest probability) to have occurred by chance (or decisions not affected by any form of bias) is to have Selected 2 female Applicants. This represents the mean of the probability distribution. Approximately half of the probability distribution is above this point and approximately half is below this point. The total area contained in the probability distribution is equal to 1. Thus, probabilities for each number of female Applicants Selected are a fraction of the total probability distribution. The larger areas of the distribution represent higher probabilities of occurance. Adding the individual probabilities up to a certain point enable you to compute the probability of having Selected that many or fewer female Applicants. Adding the individual probabilities from a certain point and higher enable you to compute the probability of having Selected that many or more female Applicants.

The characteristics of the probability distribution--its mean and standard deviation--are a function of the number of female and male Applicants and the number of Applicants to be Selected. Though it is possible to have Selected from 0 to 3 female Applicants, the individual probabilities of having Selected each number of female Applicants can be computed and accumulated. As noted before, these individual probabilities are a function of the number of female and male Applicants and the number of Applicants to be Selected.

Using the distribution above, a 90 percent confidence interval on the variable 'Number of Females Selected' would have a lower bound of 0 and an upper bound of 3.

The significance of having Selected 1 or fewer Females is graphically displayed below.

0   1   2   3
Number of female
Applicants Selected

As noted earlier, Adverse Impact, according to the 4/5ths rule, would be found if you Selected 1 *or fewer* female Applicants.

You have Selected 1 female Applicants. The probability of having Selected 1 *or fewer* Females is equal to the cumulative probability for having Selected 1 Females Applicants. The cumulative probability of having Selected 1 female Applicants is 0.3509 and is graphically displayed, in red, above.

Since the probability is greater than 10%, we are unable to reject the hypothesis that the decisions occurred due to chance. Therefore, we must conclude that it is entirely possible that having Selected 1 or fewer female Applicants is an event that occurred due to chance and not from discriminatory actions by the employer.

Number Minorities Selected	Number Non-Minorities Selected	Rate of Minorities Applicants Selected	Rate of Non-Minorities Applicants Selected	Adverse Impact Ratio of Minorities	Adverse Impact against Minorities ?	Probability	Cumulative Probability
0	80	(0/20)	(80/114)	0	YES	0	0
1	79	(1/20)	(79/114)	0.0722	YES	0	0
2	78	(2/20)	(78/114)	0.1462	YES	0.000001	0.000001
3	77	(3/20)	(77/114)	0.2221	YES	0.000012	0.000013
4	76	(4/20)	(76/114)	0.3	YES	0.000104	0.000117
5	75	(5/20)	(75/114)	0.38	YES	0.000646	0.000763
6	74	(6/20)	(74/114)	0.4622	YES	0.003028	0.003791
7	73	(7/20)	(73/114)	0.5466	YES	0.010931	0.014722

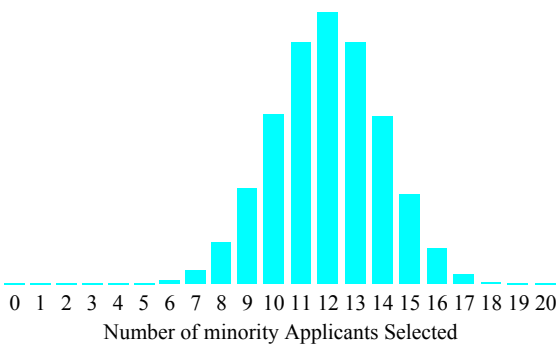|							
8	72	(8/20)	(72/114)	0.6333	YES	0.030874	0.045595
9	71	(9/20)	(71/114)	0.7225	YES	0.068927	0.114522
Selected-> 10	70	(10/20)	(70/114)	0.8143	NO	0.122345	0.236867
11	69	(11/20)	(69/114)	0.9087	NO	0.173013	0.409881
12	68	(12/20)	(68/114)	1.0059	NO	0.19464	0.604521
13	67	(13/20)	(67/114)	1.106	NO	0.173297	0.777818
14	66	(14/20)	(66/114)	1.2091	NO	0.120947	0.898764
15	65	(15/20)	(65/114)	1.3154	NO	0.065163	0.963927
16	64	(16/20)	(64/114)	1.425	NO	0.026472	0.9904
17	63	(17/20)	(63/114)	1.5381	NO	0.007817	0.998216
18	62	(18/20)	(62/114)	1.6548	NO	0.001578	0.999795
19	61	(19/20)	(61/114)	1.7754	NO	0.000194	0.999989
20	60	(20/20)	(60/114)	1.9	NO	0.000011	1

Given that 80 were Selected from a pool of 114 Non-Minorities and 20 Minorities it was possible to have Selected from 0 to 20 Minorities.

Adverse Impact would be found if you Selected 9 or fewer Minorities.

The probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is 0.1145 (the sum of the probabilities of having Selected 9 or fewer Minorities).

Since the probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is greater than 10%, an observed Adverse Impact may be not significant since the probability is greater than 1 in 10 that Adverse Impact would have occurred due to chance.

Probability Distribution of the variable: Number of Minorities Selected.


The probability distribution of having Selected from 0 to 20 Minorities is displayed above. As can be seen, the most likely event (highest probability) to have occurred by chance (or decisions not affected by any form of bias) is to have Selected 12 minority Applicants. This represents the mean of the probability distribution. Approximately half of the probability distribution is above this point and approximately half is below this point. The total area contained in the probability distribution is equal to 1. Thus, probabilities for each number of minority Applicants Selected are a fraction of the total probability distribution. The larger areas of the distribution represent higher probabilities of occurance. Adding the individual probabilities up to a certain point enable you to compute the probability of having Selected that many or fewer minority Applicants. Adding the individual probabilities from a certain point and higher enable you to compute the probability of having Selected that many or more minority Applicants.

The characteristics of the probability distribution--its mean and standard deviation--are a function of the number of minority and non-minority Applicants and the number of Applicants to be Selected. Though it is possible to have Selected from 0 to 20 minority Applicants, the individual probabilities of having Selected each number of minority Applicants can be computed and accumulated. As noted before, these individual probabilities are a function of the number of minority and non-minority Applicants and the number of Applicants to be Selected.

Using the distribution above, a 90 percent confidence interval on the variable 'Number of Minorities Selected' would have a lower bound of 9 and an upper bound of 15.

The significance of having Selected 10 or fewer Minorities is graphically displayed below.
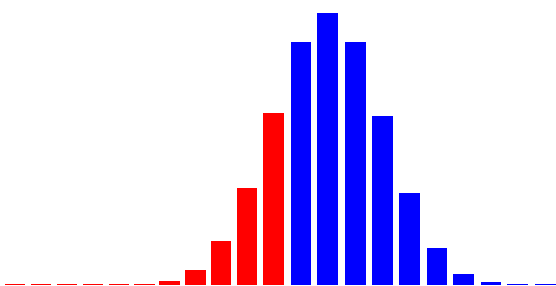
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Number of minority Applicants Selected

As noted earlier, Adverse Impact, according to the 4/5ths rule, would be found if you Selected 9 *or fewer* minority Applicants.

You have Selected 10 minority Applicants. The probability of having Selected 10 *or fewer* Minorities is equal to the cumulative probability for having Selected 10 Minorities Applicants. The cumulative probability of having Selected 10 minority Applicants is 0.2369 and is graphically displayed, in red, above.

Since the probability is greater than 10%, we are unable to reject the hypothesis that the decisions occurred due to chance. Therefore, we must conclude that it is entirely possible that having Selected 10 or fewer minority Applicants is an event that occurred due to chance and not from discriminatory actions by the employer.

View Source Code

Send questions or comments to webmaster@hr-guide.com. Thank you.

Disparate Impact Analysis
(an On-Line Internet based application)

HR-Survey.com
**An Experienced Internet
Survey Consultancy**

Instructions: Please fill out the information into the form below. Once you have entered your data below, you may select the types of analysis to be conducted by checking the appropriate boxes. Then press the compute button at the bottom of the form to view the results.

Select the type of employment decision:	Selection ▼
Enter a title for your report:	Firefighter - 80.0% Pass Point

Number of Male		Number of Non-Minority		Number of Younger		Number of Non-Disabled	
132	Applicants	114	Applicants		Applicants		Applicants
51	Selected	45	Selected		Selected		Selected
Number of Female		Number of Minority		Number of Older		Number of Disabled	
3	Applicants	20	Applicants		Applicants		Applicants
1	Selected	7	Selected		Selected		Selected

☑ -Adverse Impact
☑ -Chi-Square
☑ -Standard Deviation
☑ -Confidence Intervals
☑ Probability Distribution

Select the Statistical Tests you wish to execute by checking or unchecking the boxes on the left. Then press the 'Compute' button below.

[Compute]

Display: ☑ Description of Statistic ☑ Interpretation of Results

---

Firefighter - 80.0% Pass Point

Adverse-Impact Report

Adverse Impact **and the "four-fifths rule."** - A selection rate for any race, sex, or ethnic group which is less than four-fifths (4/5ths) (or eighty percent) of the rate for the group with the highest rate will generally be regarded by the Federal enforcement agencies as evidence of adverse impact. ***Uniform Guidelines on Employee Selection Procedures***

Rate of Females Applicants Selected	Rate of Males Applicants Selected	Adverse Impact Ratio for Females	Adverse Impact Ratio for Males
(1/ 3) = 0.3333	(51/ 132) = 0.3864	(0.3333/ 0.3864)= 0.86	(0.3864/ 0.3333)= 1.16
Adverse impact as defined by the 4/5ths rule was not found in the above data.			

Rate of Minorities Applicants Selected	Rate of Non-Minorities Applicants Selected	Adverse Impact Ratio for Minorities	Adverse Impact Ratio for Non-Minorities
(7/ 20) = 0.35	(45/ 114) = 0.3947	(0.35/ 0.3947)= 0.89	(0.3947/ 0.35)= 1.13
Adverse impact as defined by the 4/5ths rule was not found in the above data.			

Chi-Square Report

Observed Expected	Selected	Not Selected	Row Totals
Males	51 50.8444	81 81.1556	132
Females	1 1.1556	2 1.8444	3
Column Total	52	83	135

Chi-Square = 0.0348
The value of the statistic is less than 3.841. This indicates that there is a 95 percent chance that these results have been obtained absent any form of bias. Therefore, you may conclude that these results fall within normal random variations and are not the result of bias.

Observed Expected	Selected	Not Selected	Row Totals

Non-Minorities	45 44.2388	69 69.7612	114
Minorities	7 7.7612	13 12.2388	20
Column Total	52	82	134

Chi-Square = 0.1434
The value of the statistic is less than 3.841. This indicates that there is a 95 percent chance that these results have been obtained absent any form of bias. Therefore, you may conclude that these results fall within normal random variations and are not the result of bias.

Standard-Deviation Report

The difference between the proportion of the protected class Selected and the proportion of all Applicants Selected has a normal distribution with a mean and standard deviation. The statistic is shown below:

```
      (r / n) - p

-----------------------------

 sqrt(p * (1-p) / n) * sqrt(1-q)
```

Analysis of proportion of Females Selected **where:**

- **r = number of Females Selected.**
- **n = number of Selected (Females and Males).**
- **p = proportion of Applicants that are Females.**
- **q = proportion of Applicants Selected.**

	Selected	Not Selected	Row Totals
Males	51	81	132
Females	1	2	3
Column Total	52	83	135

r = 1
n = 52
p = 3 / 135 = 0.022
q = (1 + 51) / (3 + 132) = 0.385

Standard Deviation Statistic = -0.187

These results show that the proportion of Females Selected is -0.187 standard deviations below the proportion of Applicants Selected. A result of less than 2 standard deviations is generally considered non-significant.

Analysis of proportion of Minorities Selected **where:**

- **r = number of Minorities Selected.**
- **n = number of Selected (Minorities and Non-Minorities).**
- **p = proportion of Applicants that are Minorities.**
- **q = proportion of Applicants Selected.**

	Selected	Not Selected	Row Totals
Non-Minorities	45	69	114
Minorities	7	13	20
Column Total	52	82	134

r = 7
n = 52
p = 20 / 134 = 0.149
q = (7 + 45) / (20 + 114) = 0.388

Standard Deviation Statistic = -0.379

These results show that the proportion of Minorities Selected is -0.379 standard deviations below the proportion of Applicants Selected. A result of less than 2 standard deviations is generally considered non-significant.

Confidence Interval Report

The proportion of the protected class Selected has an expected value that would fall within a specified confidence interval. The statistic is shown below:
Observed value = (r / n)
Expected value = p

Standard Deviation = sqrt(p * (1-p) / n) * sqrt(1-q)

Confidence Interval:
Lower Bound = p - 1.96 * Std Dev
Upper Bound = p + 1.96 * Std Dev

Analysis of proportion of Females Applicants Selected **where:**

- **r = number of Females Selected.**
- **n = number of Applicants Selected.**
- **p = proportion of Females among those Selected.**
- **q = proportion of Applicants Selected.**

r = 1
n = 52
p = (3/(3+132))=0.022
q = ((1 + 51)/(3 + 132))=0.385
(r/n)=1/52=0.0192

The lower bound of the confidence interval is: 0.022 -(1.96* 0.016)= -0.0092
The upper bound of the confidence interval is: 0.022 +(1.96* 0.016)= 0.0536

Confidence Interval = -0.0092 to 0.0536

These results show that the proportion of Females Females (r/n=0.0192) is contained in the confidence interval. Therefore a finding of disparate impact is not supported by this data.

Analysis of proportion of Minorities Applicants Selected **where:**

- **r = number of Minorities Selected.**
- **n = number of Applicants Selected.**
- **p = proportion of Minorities among those Selected.**
- **q = proportion of Applicants Selected.**

r = 7
n = 52
p = (20/(20+114))=0.149
q = ((7 + 45)/(20 + 114))=0.388
(r/n)=7/52=0.1346

The lower bound of the confidence interval is: 0.149 -(1.96* 0.039)= 0.0735
The upper bound of the confidence interval is: 0.149 +(1.96* 0.039)= 0.225

Confidence Interval = 0.0735 to 0.225

These results show that the proportion of Minorities Minorities (r/n=0.1346) is contained in the confidence interval. Therefore a finding of disparate impact is not supported by this data.

Probability Distribution Report

Number Females Selected	Number Males Selected	Rate of Females Applicants Selected	Rate of Males Applicants Selected	Adverse Impact Ratio of Females	Adverse Impact against Females ?	Probability	Cumulative Probability
0	52	(0/3)	(52/132)	0	YES	0.229133	0.229133
Selected-> 1	51	(1/3)	(51/132)	0.8627	NO	0.441292	0.670425
2	50	(2/3)	(50/132)	1.76	NO	0.274462	0.944887
3	49	(3/3)	(49/132)	2.6939	NO	0.055113	1

Given that 52 were Selected from a pool of 132 Males and 3 Females it was possible to have Selected from 0 to 3 Females.
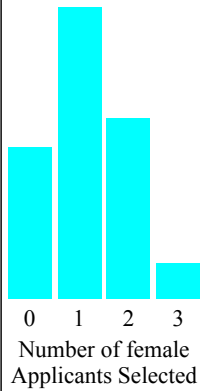
Adverse Impact would be found if you Selected 0 or fewer Females.

The probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is 0.2291 (the sum of the probabilities of having Selected 0 or fewer Females).

Since the probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is greater than 10%, an observed

Adverse Impact may be not significant since the probability is greater than 1 in 10 that Adverse Impact would have occurred due to chance.

Probability Distribution of the variable: Number of Females Selected.

0   1   2   3
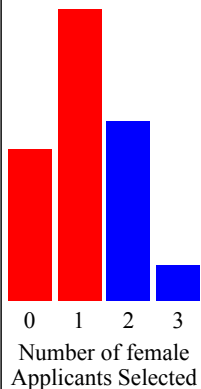Number of female
Applicants Selected

The probability distribution of having Selected from 0 to 3 Females is displayed above. As can be seen, the most likely event (highest probability) to have occurred by chance (or decisions not affected by any form of bias) is to have Selected 1 female Applicants. This represents the mean of the probability distribution. Approximately half of the probability distribution is above this point and approximately half is below this point. The total area contained in the probability distribution is equal to 1. Thus, probabilities for each number of female Applicants Selected are a fraction of the total probability distribution. The larger areas of the distribution represent higher probabilities of occurance. Adding the individual probabilities up to a certain point enable you to compute the probability of having Selected that many or fewer female Applicants. Adding the individual probabilities from a certain point and higher enable you to compute the probability of having Selected that many or more female Applicants.

The characteristics of the probability distribution--its mean and standard deviation--are a function of the number of female and male Applicants and the number of Applicants to be Selected. Though it is possible to have Selected from 0 to 3 female Applicants, the individual probabilities of having Selected each number of female Applicants can be computed and accumulated. As noted before, these individual probabilities are a function of the number of female and male Applicants and the number of Applicants to be Selected.

Using the distribution above, a 90 percent confidence interval on the variable 'Number of Females Selected' would have a lower bound of 0 and an upper bound of 3.

The significance of having Selected 1 or fewer Females is graphically displayed below.

0   1   2   3
Number of female
Applicants Selected

As noted earlier, Adverse Impact, according to the 4/5ths rule, would be found if you Selected 0 *or fewer* female Applicants.

You have Selected 1 female Applicants. The probability of having Selected 1 *or fewer* Females is equal to the cumulative probability for having Selected 1 Females Applicants. The cumulative probability of having Selected 1 female Applicants is 0.6704 and is graphically displayed, in red, above.

Since the probability is greater than 10%, we are unable to reject the hypothesis that the decisions occurred due to chance. Therefore, we must conclude that it is entirely possible that having Selected 1 or fewer female Applicants is an event that occurred due to chance and not from discriminatory actions by the employer.

Number Minorities Selected	Number Non-Minorities Selected	Rate of Minorities Applicants Selected	Rate of Non-Minorities Applicants Selected	Adverse Impact Ratio of Minorities	Adverse Impact against Minorities ?	Probability	Cumulative Probability
0	52	(0/20)	(52/114)	0	YES	0.000019	0.000019
1	51	(1/20)	(51/114)	0.1118	YES	0.000318	0.000338
2	50	(2/20)	(50/114)	0.228	YES	0.002409	0.002747
3	49	(3/20)	(49/114)	0.349	YES	0.01112	0.013866

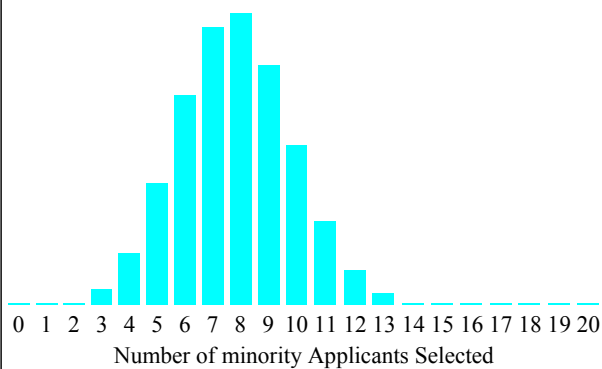|							
4	48	(4/20)	(48/114)	0.475	YES	0.035086	0.048952
5	47	(5/20)	(47/114)	0.6064	YES	0.080436	0.129388
6	46	(6/20)	(46/114)	0.7435	YES	0.138988	0.268376
Selected-> 7	45	(7/20)	(45/114)	0.8867	NO	0.185318	0.453694
8	44	(8/20)	(44/114)	1.0364	NO	0.193591	0.647285
9	43	(9/20)	(43/114)	1.193	NO	0.159962	0.807247
10	42	(10/20)	(42/114)	1.3571	NO	0.105086	0.912334
11	41	(11/20)	(41/114)	1.5293	NO	0.054964	0.967298
12	40	(12/20)	(40/114)	1.71	NO	0.02284	0.990138
13	39	(13/20)	(39/114)	1.9	NO	0.007496	0.997634
14	38	(14/20)	(38/114)	2.1	NO	0.001923	0.999558
15	37	(15/20)	(37/114)	2.3108	NO	0.00038	0.999937
16	36	(16/20)	(36/114)	2.5333	NO	0.000056	0.999994
17	35	(17/20)	(35/114)	2.7686	NO	0.000006	1
18	34	(18/20)	(34/114)	3.0176	NO	0	1
19	33	(19/20)	(33/114)	3.2818	NO	0	1
20	32	(20/20)	(32/114)	3.5625	NO	0	1

Given that 52 were Selected from a pool of 114 Non-Minorities and 20 Minorities it was possible to have Selected from 0 to 20 Minorities.

Adverse Impact would be found if you Selected 6 or fewer Minorities.

The probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is 0.2684 (the sum of the probabilities of having Selected 6 or fewer Minorities).

Since the probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is greater than 10%, an observed Adverse Impact may be not significant since the probability is greater than 1 in 10 that Adverse Impact would have occurred due to chance.

Probability Distribution of the variable: Number of Minorities Selected.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
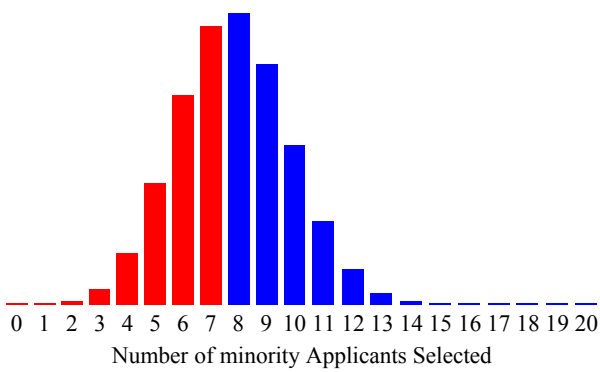Number of minority Applicants Selected

The probability distribution of having Selected from 0 to 20 Minorities is displayed above. As can be seen, the most likely event (highest probability) to have occurred by chance (or decisions not affected by any form of bias) is to have Selected 8 minority Applicants. This represents the mean of the probability distribution. Approximately half of the probability distribution is above this point and approximately half is below this point. The total area contained in the probability distribution is equal to 1. Thus, probabilities for each number of minority Applicants Selected are a fraction of the total probability distribution. The larger areas of the distribution represent higher probabilities of occurance. Adding the individual probabilities up to a certain point enable you to compute the probability of having Selected that many or fewer minority Applicants. Adding the individual probabilities from a certain point and higher enable you to compute the probability of having Selected that many or more minority Applicants.

The characteristics of the probability distribution--its mean and standard deviation--are a function of the number of minority and non-minority Applicants and the number of Applicants to be Selected. Though it is possible to have Selected from 0 to 20 minority Applicants, the individual probabilities of having Selected each number of minority Applicants can be computed and accumulated. As noted before, these individual probabilities are a function of the number of minority and non-minority Applicants and the number of Applicants to be Selected.

Using the distribution above, a 90 percent confidence interval on the variable 'Number of Minorities Selected' would have a lower bound of 5 and an upper bound of 11.

The significance of having Selected 7 or fewer Minorities is graphically displayed below.

Number of minority Applicants Selected

As noted earlier, Adverse Impact, according to the 4/5ths rule, would be found if you Selected 6 *or fewer* minority Applicants.

You have Selected 7 minority Applicants. The probability of having Selected 7 *or fewer* Minorities is equal to the cumulative probability for having Selected 7 Minorities Applicants. The cumulative probability of having Selected 7 minority Applicants is 0.4537 and is graphically displayed, in red, above.

Since the probability is greater than 10%, we are unable to reject the hypothesis that the decisions occurred due to chance. Therefore, we must conclude that it is entirely possible that having Selected 7 or fewer minority Applicants is an event that occurred due to chance and not from discriminatory actions by the employer.

View Source Code

Send questions or comments to webmaster@hr-guide.com. Thank you.

Disparate Impact Analysis
(an On-Line Internet based application)

Instructions: Please fill out the information into the form below. Once you have entered your data below, you may select the types of analysis to be conducted by checking the appropriate boxes. Then press the compute button at the bottom of the form to view the results.

Select the type of employment decision: Selection ▾

Enter a title for your report: Firefighter - 83.0% Pass Point

Number of Male	Number of Non-Minority	Number of Younger	Number of Non-Disabled
132 Applicants	114 Applicants	Applicants	Applicants
28 Selected	26 Selected	Selected	Selected

Number of Female	Number of Minority	Number of Older	Number of Disabled
3 Applicants	20 Applicants	Applicants	Applicants
1 Selected	3 Selected	Selected	Selected

☑ -Adverse Impact
☑ -Chi-Square
☑ -Standard Deviation
☑ -Confidence Intervals
☑ Probability Distribution

Select the Statistical Tests you wish to execute by checking or unchecking the boxes on the left. Then press the 'Compute' button below.

[Compute]

Display: ☑ Description of Statistic ☑ Interpretation of Results

---

Firefighter - 83.0% Pass Point

Adverse-Impact Report

Adverse Impact **and the "four-fifths rule." - A selection rate for any race, sex, or ethnic group which is less than four-fifths (4/5ths) (or eighty percent) of the rate for the group with the highest rate will generally be regarded by the Federal enforcement agencies as evidence of adverse impact.** ***Uniform Guidelines on Employee Selection Procedures***

Rate of Females Applicants Selected	Rate of Males Applicants Selected	Adverse Impact Ratio for Females	Adverse Impact Ratio for Males
(1/ 3) = 0.3333	(28/ 132) = 0.2121	(0.3333/ 0.2121)= 1.57	(0.2121/ 0.3333)= 0.64

The Adverse Impact Ratio for Males is less than 0.80.
Males Applicants are Selected at a rate less than 80% (4/5ths) of the rate that Females Applicants are Selected.

Rate of Minorities Applicants Selected	Rate of Non-Minorities Applicants Selected	Adverse Impact Ratio for Minorities	Adverse Impact Ratio for Non-Minorities
(3/ 20) = 0.15	(26/ 114) = 0.2281	(0.15/ 0.2281)= 0.66	(0.2281/ 0.15)= 1.52

The Adverse Impact Ratio for Minorities is less than 0.80.
Minorities Applicants are Selected at a rate less than 80% (4/5ths) of the rate that Non-Minorities Applicants are Selected.

Chi-Square Report

Observed Expected	Selected	Not Selected	Row Totals
Males	28 28.3556	104 103.6444	132
Females	1	2	3

	0.6444	2.3556	
Column Total	29	106	135

Chi-Square = 0.2555
The value of the statistic is less than 3.841. This indicates that there is a 95 percent chance that these results have been obtained absent any form of bias. Therefore, you may conclude that these results fall within normal random variations and are not the result of bias.

Observed Expected	Selected	Not Selected	Row Totals
Non-Minorities	26 24.6716	88 89.3284	114
Minorities	3 4.3284	17 15.6716	20
Column Total	29	105	134

Chi-Square = 0.6115
The value of the statistic is less than 3.841. This indicates that there is a 95 percent chance that these results have been obtained absent any form of bias. Therefore, you may conclude that these results fall within normal random variations and are not the result of bias.

Standard-Deviation Report

The difference between the proportion of the protected class Selected and the proportion of all Applicants Selected has a normal distribution with a mean and standard deviation. The statistic is shown below:

$$\frac{(r \,/\, n) - p}{\mathrm{sqrt}(p * (1-p) \,/\, n) * \mathrm{sqrt}(1-q)}$$

Analysis of proportion of Females Selected **where:**

- **r = number of Females Selected.**
- **n = number of Selected (Females and Males).**
- **p = proportion of Applicants that are Females.**
- **q = proportion of Applicants Selected.**

	Selected	Not Selected	Row Totals
Males	28	104	132
Females	1	2	3
Column Total	29	106	135

r = 1
n = 29
p = 3 / 135 = 0.022
q = (1 + 28) / (3 + 132) = 0.215

Standard Deviation Statistic = 0.505

These results show that the proportion of Females Selected is 0.505 standard deviations above the proportion of Applicants Selected. A result of less than 2 standard deviations is generally considered non-significant.

Analysis of proportion of Minorities Selected **where:**

- **r = number of Minorities Selected.**
- **n = number of Selected (Minorities and Non-Minorities).**
- **p = proportion of Applicants that are Minorities.**
- **q = proportion of Applicants Selected.**

	Selected	Not Selected	Row Totals
Non-Minorities	26	88	114
Minorities	3	17	20
Column Total	29	105	134

r = 3
n = 29
p = 20 / 134 = 0.149
q = (3 + 26) / (20 + 114) = 0.216

Standard Deviation Statistic = -0.782

These results show that the proportion of Minorities Selected is -0.782 standard deviations below the proportion of Applicants Selected. A result of less than 2 standard deviations is generally considered non-significant.

Confidence Interval Report

The proportion of the protected class Selected has an expected value that would fall within a specified confidence interval.
The statistic is shown below:
Observed value = (r / n)
Expected value = p

Standard Deviation = sqrt(p * (1-p) / n) * sqrt(1-q)

Confidence Interval:
Lower Bound = p - 1.96 * Std Dev
Upper Bound = p + 1.96 * Std Dev

Analysis of proportion of Females Applicants Selected where:

- r = number of Females Selected.
- n = number of Applicants Selected.
- p = proportion of Females among those Selected.
- q = proportion of Applicants Selected.

r = 1
n = 29
p = (3/(3+132))=0.022
q = ((1 + 28)/(3 + 132))=0.215
(r/n)=1/29=0.0345

The lower bound of the confidence interval is: 0.022 -(1.96* 0.024)= -0.0253
The upper bound of the confidence interval is: 0.022 +(1.96* 0.024)= 0.0698

Confidence Interval = -0.0253 to 0.0698

These results show that the proportion of Females Females (r/n=0.0345) is contained in the confidence interval. Therefore a finding of disparate impact is not supported by this data.

Analysis of proportion of Minorities Applicants Selected where:

- r = number of Minorities Selected.
- n = number of Applicants Selected.
- p = proportion of Minorities among those Selected.
- q = proportion of Applicants Selected.

r = 3
n = 29
p = (20/(20+114))=0.149
q = ((3 + 26)/(20 + 114))=0.216
(r/n)=3/29=0.1034

The lower bound of the confidence interval is: 0.149 -(1.96* 0.059)= 0.0344
The upper bound of the confidence interval is: 0.149 +(1.96* 0.059)= 0.2641

Confidence Interval = 0.0344 to 0.2641

These results show that the proportion of Minorities Minorities (r/n=0.1034) is contained in the confidence interval. Therefore a finding of disparate impact is not supported by this data.

Probability Distribution Report

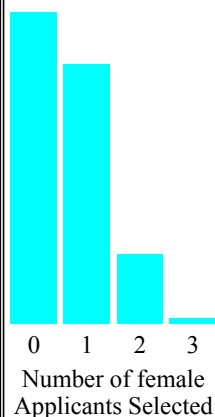| Number Females Selected	Number Males Selected	Rate of Females Applicants Selected	Rate of Males Applicants Selected	Adverse Impact Ratio of Females	Adverse Impact against Females ?	Probability	Cumulative Probability
0	29	(0/3)	(29/132)	0	YES	0.481103	0.481103
Selected-> 1	28	(1/3)	(28/132)	1.5714	NO	0.402461	0.883565
2	27	(2/3)	(27/132)	3.2593	NO	0.107323	0.990888
3	26	(3/3)	(26/132)	5.0769	NO	0.009112	1

Given that 29 were Selected from a pool of 132 Males and 3 Females it was possible to have Selected from 0 to 3 Females.

Adverse Impact would be found if you Selected 0 or fewer Females.

The probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is 0.4811 (the sum of the probabilities of having Selected 0 or fewer Females).

Since the probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is greater than 10%, an observed Adverse Impact may be not significant since the probability is greater than 1 in 10 that Adverse Impact would have occurred due to chance.

Probability Distribution of the variable: Number of Females Selected.


Number of female
Applicants Selected

The probability distribution of having Selected from 0 to 3 Females is displayed above. As can be seen, the most likely event (highest probability) to have occurred by chance (or decisions not affected by any form of bias) is to have Selected 0 female Applicants. This represents the mean of the probability distribution. Approximately half of the probability distribution is above this point and approximately half is below this point. The total area contained in the probability distribution is equal to 1. Thus, probabilities for each number of female Applicants Selected are a fraction of the total probability distribution. The larger areas of the distribution represent higher probabilities of occurance. Adding the individual probabilities up to a certain point enable you to compute the probability of having Selected that many or fewer female Applicants. Adding the individual probabilities from a certain point and higher enable you to compute the probability of having Selected that many or more female Applicants.

The characteristics of the probability distribution--its mean and standard deviation--are a function of the number of female and male Applicants and the number of Applicants to be Selected. Though it is possible to have Selected from 0 to 3 female Applicants, the individual probabilities of having Selected each number of female Applicants can be computed and accumulated. As noted before, these individual probabilities are a function of the number of female and male Applicants and the number of Applicants to be Selected.

Using the distribution above, a 90 percent confidence interval on the variable 'Number of Females Selected' would have a lower bound of 0 and an upper bound of 2.

The significance of having Selected 1 or fewer Females is graphically displayed below.
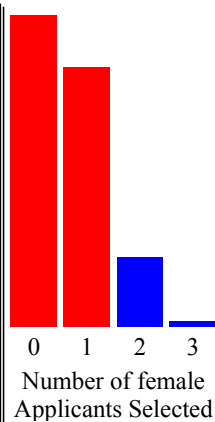
Number of female
Applicants Selected

As noted earlier, Adverse Impact, according to the 4/5ths rule, would be found if you Selected 0 *or fewer* female Applicants.

You have Selected 1 female Applicants. The probability of having Selected 1 *or fewer* Females is equal to the cumulative probability for having Selected 1 Females Applicants. The cumulative probability of having Selected 1 female Applicants is 0.8836 and is graphically displayed, in red, above.

Since the probability is greater than 10%, we are unable to reject the hypothesis that the decisions occurred due to chance. Therefore, we must conclude that it is entirely possible that having Selected 1 or fewer female Applicants is an event that occurred due to chance and not from discriminatory actions by the employer.

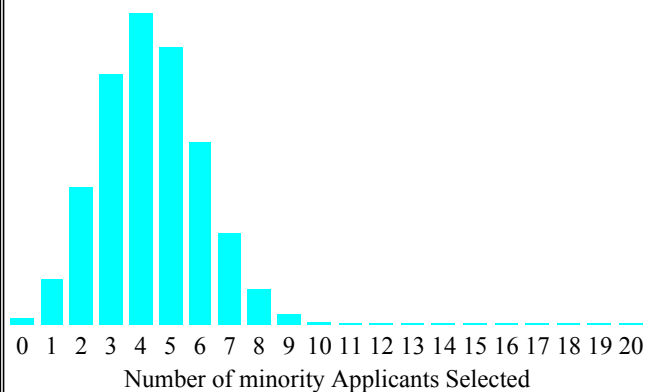| Number Minorities Selected	Number Non-Minorities Selected	Rate of Minorities Applicants Selected	Rate of Non-Minorities Applicants Selected	Adverse Impact Ratio of Minorities	Adverse Impact against Minorities ?	Probability	Cumulative Probability
0	29	(0/20)	(29/114)	0	YES	0.004899	0.004899
1	28	(1/20)	(28/114)	0.2036	YES	0.033041	0.037941
2	27	(2/20)	(27/114)	0.4222	YES	0.101023	0.138964
Selected-> 3	26	(3/20)	(26/114)	0.6577	YES	0.185975	0.324938
4	25	(4/20)	(25/114)	0.912	NO	0.230901	0.555839
5	24	(5/20)	(24/114)	1.1875	NO	0.205245	0.761085
6	23	(6/20)	(23/114)	1.487	NO	0.135327	0.896411
7	22	(7/20)	(22/114)	1.8136	NO	0.067663	0.964075
8	21	(8/20)	(21/114)	2.1714	NO	0.02601	0.990085
9	20	(9/20)	(20/114)	2.565	NO	0.007748	0.997833
10	19	(10/20)	(19/114)	3	NO	0.001794	0.999627
11	18	(11/20)	(18/114)	3.4833	NO	0.000323	0.99995
12	17	(12/20)	(17/114)	4.0235	NO	0.000045	0.999995
13	16	(13/20)	(16/114)	4.6313	NO	0.000005	1
14	15	(14/20)	(15/114)	5.32	NO	0	1
15	14	(15/20)	(14/114)	6.1071	NO	0	1
16	13	(16/20)	(13/114)	7.0154	NO	0	1
17	12	(17/20)	(12/114)	8.075	NO	0	1
18	11	(18/20)	(11/114)	9.3273	NO	0	1
19	10	(19/20)	(10/114)	10.83	NO	0	1
20	9	(20/20)	(9/114)	12.6667	NO	0	1

Given that 29 were Selected from a pool of 114 Non-Minorities and 20 Minorities it was possible to have Selected from 0 to 20 Minorities.

Adverse Impact would be found if you Selected 3 or fewer Minorities.

The probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is 0.3249 (the sum of the probabilities of having Selected 3 or fewer Minorities).

Since the probability of Adverse Impact occurring even if the employment decisions were random (i.e. unbiased) is greater than 10%, an observed Adverse Impact may be not significant since the probability is greater than 1 in 10 that Adverse Impact would have occurred due to chance.

Probability Distribution of the variable: Number of Minorities Selected.

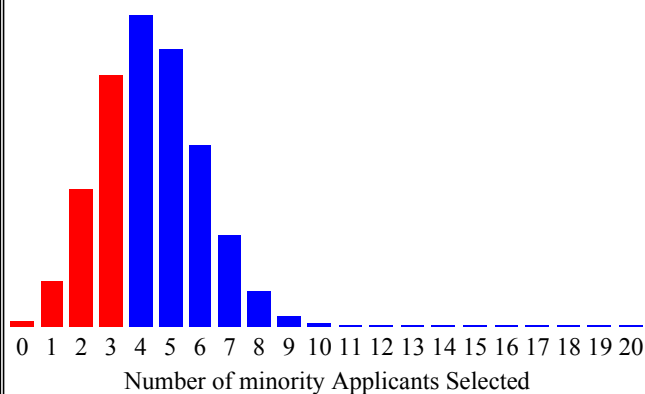Number of minority Applicants Selected

The probability distribution of having Selected from 0 to 20 Minorities is displayed above. As can be seen, the most likely event (highest probability) to have occurred by chance (or decisions not affected by any form of bias) is to have Selected 4 minority Applicants. This represents the mean of the probability distribution. Approximately half of the probability distribution is above this point and approximately half is below this point. The total area contained in the probability distribution is equal to 1. Thus, probabilities for each number of minority Applicants Selected are a fraction of the total probability distribution. The larger areas of the distribution represent higher probabilities of occurance. Adding the individual probabilities up to a certain point enable you to compute the probability of having Selected that many or fewer minority Applicants. Adding the individual probabilities from a certain point and higher enable you to compute the probability of having Selected that many or more minority Applicants.

The characteristics of the probability distribution--its mean and standard deviation--are a function of the number of minority and non-minority Applicants and the number of Applicants to be Selected. Though it is possible to have Selected from 0 to 20 minority Applicants, the individual probabilities of having Selected each number of minority Applicants can be computed and accumulated. As noted before, these individual probabilities are a function of the number of minority and non-minority Applicants and the number of Applicants to be Selected.

Using the distribution above, a 90 percent confidence interval on the variable 'Number of Minorities Selected' would have a lower bound of 2 and an upper bound of 7.

The significance of having Selected 3 or fewer Minorities is graphically displayed below.

Number of minority Applicants Selected

As noted earlier, Adverse Impact, according to the 4/5ths rule, would be found if you Selected 3 *or fewer* minority Applicants.

You have Selected 3 minority Applicants. The probability of having Selected 3 *or fewer* Minorities is equal to the cumulative probability for having Selected 3 Minorities Applicants. The cumulative probability of having Selected 3 minority Applicants is 0.3249 and is graphically displayed, in red, above.

Since the probability is greater than 10%, we are unable to reject the hypothesis that the decisions occurred due to chance. Therefore, we must conclude that it is entirely possible that having Selected 3 or fewer minority Applicants is an event that occurred due to chance and not from discriminatory actions by the employer.

View Source Code