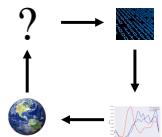


Experience Data Science with Food Safety in SF

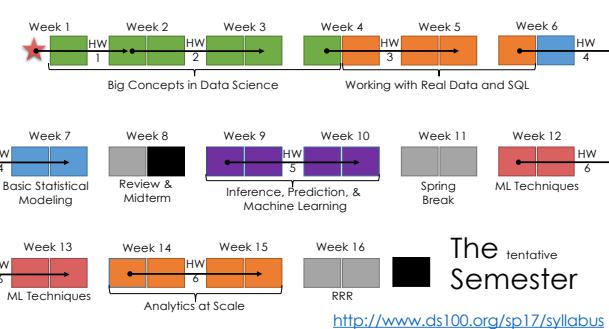
Slides by:

Joseph E. Gonzalez

jegonzal@cs.berkeley.edu



Yesterday: Overview of DS100



Grades

- [40%] 7 Homework: be a data-scientist
 - 1 to 2 week long programming assignments
- [13%] 13 Vitamins: don't fall behind
 - Mini quizzes (1 per week of instruction)
- [7%] 13 Labs: improve computing skills
 - Completion graded
- [15%] 1 Midterm: checkpoint on progress
 - In class, healthy checkpoint
- [25%] 1 Final

On Time Policy (don't be late)

- 5 days of "slip-time" to be used on homework for unforeseen circumstances (e.g., get sick or deadline conflicts)
- After you have used your slip-time budget
 - 20% per day for each late day
- If you are having trouble finishing assignments on time let us know!

Collaboration Policy: **Don't Cheat!**

- Data Science is a collaborative activity
- You may discuss problems with friends
 - List their names at the top of your assignments
 - We may periodically analyze the collaboration networks
- You must write your solutions individually
- Don't Cheat**
 - Content in the homework and vitamins will be on the midterm and final
 - If you are struggling let us know so we can help!

Staying Up to Date

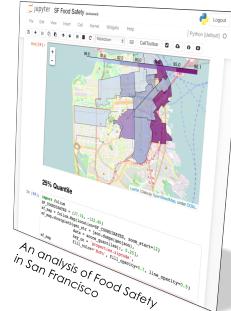
- Communication will be largely through Piazza
 - <http://piazza.com/berkeley/spring2017/ds100>
- We will also be updating the website with links to homework, lectures, and vitamins

<http://ds100.org>

Today

- Learn some skills
 - Jupyter Notebooks
 - Bash
 - Pandas
- Think like a data scientist
 - Asking questions
 - Manipulating data
 - Visualizing results

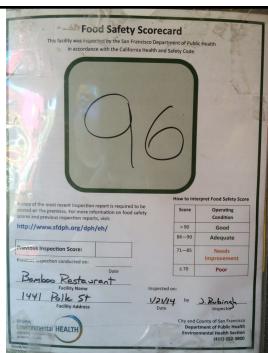
Inspired by Jonathan Dinu's (Berkeley Alum.) blog post: <https://github.com/hopelessoptimism/happy-hungry/blob/master/h3.ipynb>



What does a score of 96 mean?

- Is that good?
- Would you eat here?
 - Have you eaten here?

In this lecture we will try to answer this question and build a better understanding of food safety ratings in SF.



Interested in Studying Food Safety in SF

- Is 96 a good score?
- How is the score determined?
- What are common issues?
- Are the regions of the city that are less safe?
- Are scores improving?

Ask
Question

Research: Domain Knowledge

Consult SF food safety website



Research: Domain Knowledge

Consult SF food safety website

Score	Operating Condition Category	Inspection Findings
> 90	Good	<ul style="list-style-type: none"> Typically, only lower-risk health and safety violations observed May have high risk violations
86-90	Adequate	<ul style="list-style-type: none"> Several violations observed May have high-risk violations
71-85	Needs Improvement	<ul style="list-style-type: none"> Multiple violations observed Typically, several high-risk violations
Less than or equal to 70	Poor	<ul style="list-style-type: none"> Multiple violations observed Typically, several high-risk violations

Most cases of high risk violations require re-inspections to ensure that conditions are improved.

Research: Domain Knowledge

Consult SF food safety website

HELPFUL LINKS

Food Safety Program Home
Restaurant Inspections

For more information on food safety scores sfstop.org/cph/EH/Food/Scores/

The Food Safety Program enforces health code regulations, which may result in administrative actions and suspension or revocation of the Permit to Operate when violations are identified. To enforce the health code regulations, Environmental Health Inspectors inspect over 7,000 locations in San Francisco including restaurants, bars, markets, bakeries, pushcarts, stadium food facilities and any other facility that serves food to the public.

The frequency and the scores for all the food establishments depend on its type as set by the health codes. Food establishments are divided into 3 categories:

Category 1 - Score is Required
Inspection score of 81% or above: Requires 2 inspections per year
Inspection score of 80% or below: Requires 3 inspections per year

Category 2 - Score is Required
One (1) routine inspection required per year

Category 3 - Does Not Require a Score
One (1) routine inspection required per year

Overview of Inspection Requirements

- All walls, floors and ceilings must be clean and in tact without large cracks or holes.
- All foods must be stored 6" off the floor to facilitate cleaning and sweeping of floors and to prevent vermin harborage.
- All food storage must be arranged to prevent cross contamination. Foods are to be stored to prevent possible contamination from hazardous materials (i.e. bleach, cleaning agents, etc.).
- All equipment used in daily operations is to be in good running order. All storage areas and shelving must be clean.
- There shall be sufficient regular refuse collection to prevent garbage problems (overfilled receptacles causing garbage accumulation).
- All food service workers shall exhibit good personal hygiene and work habits (i.e. good health for the worker, cleanliness of outer garments, proper food handling, etc.).
- All establishments serving food shall have an employed Certified Food Handler to comply with AB1978 (Campbell Bill).
- All food facilities are to comply with the Labor Code Sec. 6404.5 which prohibits smoking in enclosed workplaces.

Environmental Health

Food Safety Program: Inspections

The Food Safety Program enforces health code regulations, which may result in administrative actions and suspension or revocation of the Permit to Operate when violations are identified. To enforce the health code regulations, Environmental Health Inspectors inspect over 7,000 Locations in San Francisco including restaurants, bars, markets, bakeries, pushcarts, stadium food facilities and any other facility that serves food to the public.

The frequency and the scores for all the food establishments depend on its type as set by the health codes. Food establishments are divided into 3 categories:

Category 1 - Score is Required
Inspection score of 81% or above: Requires 2 inspections per year
Inspection score of 80% or below: Requires 3 inspections per year

Category 2 - Score is Required
One (1) routine inspection required per year

Category 3 - Does Not Require a Score
One (1) routine inspection required per year

Overview of Inspection Requirements

- All walls, floors and ceilings must be clean and in tact without large cracks or holes.
- All foods must be stored 6" off the floor to facilitate cleaning and sweeping of floors and to prevent vermin harborage.

The Food Safety Program enforces health code regulations, which may result in administrative actions and suspension or revocation of the Permit to Operate when violations are identified. To enforce the health code regulations, Environmental Health Inspectors inspect over 7,000 Locations in San Francisco including restaurants, bars, markets, bakeries, pushcarts, stadium food facilities and any other facility that serves food to the public.

The frequency and the scores for all the food establishments depend on its type as set by the health codes. Food establishments are divided into 3 categories:

Category 1 - Score is Required
Inspection score of 81% or above: Requires 2 inspections per year
Inspection score of 80% or below: Requires 3 inspections per year

Category 2 - Score is Required
One (1) routine inspection required per year

Category 3 - Does Not Require a Score
One (1) routine inspection required per year

Overview of Inspection Requirements

- All walls, floors and ceilings must be clean and in tact without large cracks or holes. Literally no holes in the wall ...
- All foods must be stored 6" off the floor to facilitate cleaning and sweeping of floors and to prevent vermin harborage.
- No rodent (rodents, insects, or pests) infestation upon the premises.
- All food storage must be arranged to prevent possible contamination from hazardous materials (i.e. bleach, cleaning agents, etc.).
- All equipment used in daily operations is to be in good running order. All storage areas and shelving must be clean.
- There shall be sufficient regular refuse collection to prevent garbage problems (overfilled receptacles causing garbage accumulation).
- All food service workers shall exhibit good personal hygiene and work habits (i.e. good health for the worker, cleanliness of outer garments, proper food handling, etc.).
- All establishments serving food shall have an employed Certified Food Handler to comply with AB1978 (Campbell Bill).
- All food facilities are to comply with the Labor Code Sec. 6404.5 which prohibits smoking in enclosed workplaces.

The Food Safety Program enforces health code regulations, which may result in administrative actions and suspension or revocation of the Permit to Operate when violations are identified. To enforce the health code regulations, Environmental Health Inspectors inspect over 7,000 Locations in San Francisco including restaurants, bars, markets, bakeries, pushcarts, stadium food facilities and any other facility that serves food to the public.

The frequency and the scores for all the food establishments depend on its type as set by the health codes. Food establishments are divided into 3 categories:

Category 1 - Score is Required
Inspection score of 81% or above: Requires 2 inspections per year
Inspection score of 80% or below: Requires 3 inspections per year

Category 2 - Score is Required
One (1) routine inspection required per year

Category 3 - Does Not Require a Score
One (1) routine inspection required per year

Overview of Inspection Requirements

- All walls, floors and ceilings must be clean and in tact without large cracks or holes.
- All foods must be stored 6" off the floor to facilitate cleaning and sweeping of floors and to prevent vermin harborage.

San Francisco
Department of Public Health

[Health](#) [Environment](#) [Business](#) [Community](#) [Food Safety](#) [Healthcare](#) [Housing](#) [Safety](#)

[About DPH](#) [Our Services](#) [Our Programs](#) [Healthy Living](#) [Business, Providers & Licensing](#) [Community Health & Collaboration](#) [Research & Conditions](#) [Training](#)

[About DPH](#) [Our Services](#) [Our Programs](#) [Healthy Living](#) [Business, Providers & Licensing](#) [Community Health & Collaboration](#) [Research & Conditions](#) [Training](#)

[Environmental Health](#) [Food Safety](#) [Public Health Emergency](#) [Food Safety](#) [Public Health Emergency](#)

Environmental Health

Food Safety Program: Violation Types

Any violation of a requirement of our public health laws, the Environmental Health Code, or a permit issued based on the violation.

Main and minor violations are defined in the California Health and Safety Code Title 17. California Health Code Major violations are those that pose an immediate threat to public health and safety.

The following table defines the major violations that can result in a citation:

Major Violations	Minor Violations
• Communicable disease	• Infestation of food, equipment, utensils, and surfaces
• Improper food handling	• Improper food storage
• Improper food preparation	• Improper food labeling
• Poor personal hygiene	• Poor personal hygiene
• Improper equipment	• Improper equipment
• Improper cleaning	• Improper cleaning
• Improper waste disposal	• Improper waste disposal

All other violations listed in the California Health and Safety Code are minor violations.

Food Safety Program: Major

Find a Store

Food Safety Inspections

California Health and Safety Code

Food Safety: Drinking Water

Food Safety: Drinking Water

<h1>Environmental Health</h1>	
<h2>Food Safety Program: Violation Types</h2>	
After conducting an inspection of your facility, the Environmental Health Inspector will calculate a score based on the violations observed. Different violations reflect different levels of risk to the public's health and safety.	<h3>HELPFUL LINKS</h3> <ul style="list-style-type: none">Food Safety Program HomeFind a ScoreSymbol of ExcellenceFood Safety InspectionsCalifornia Health and Safety CodeFood Safety During a Power Outage
Major and minor violations are defined in the California Health and Safety Code (Part 7 - California Retail Food Code). Major violations pose an imminent public health danger and require immediate correction and/or closure of a facility.	
The following list defines the major violations that can occur during an inspection:	
001 Commercial disease	
Employees with communicable disease shall be excluded from the food facility/Preparation of food. Gloves shall be worn if employees have cuts, sores, or rashes. No employee shall perform any act that may contaminate or adulterate food, food contact surface, or utensils.	
002 Hand washing	
Employees are required to wash their hands before beginning work; before handling food/ingredients/utensils; as often as necessary, during food preparation, to remove soil and contamination; and when switching from working with raw to ready-to-eat foods, after touching body parts; using the toilet, or any time when contamination may occur.	
003 Improper hotcold holding temperatures	
Two or more food items cannot be stored in separate containers/compartments or poached eggs held in temperatures between 60°F and 125°F, with exceptions.	
004 Time is a public enemy	
Written procedures for restricting time of food to unsafe temperatures to four hours is required; time control programs must be adhered to by staff.	
005 Cooling cooking methods	
All potentially hazardous food shall be RAPIDLY cooled from 135°F to 70°F within 2 hours, and then from 70°F to 41°F within 4 hours. Cooling shall be by one or more of the following methods: in a shallow container; separating food into smaller portions; adding ice as an ingredient; using an ice bath; stirring frequently; using rapid cooling equipment; or using containers that facilitate heat transfer.	
006 Improper cooking time/temperatures	
Food shall be cooked to the minimum temperature required by the California Health and Safety Code. Commemated meat, or any food containing commended meat, shall be heated to 155°F. Eggs and foods containing raw eggs, and single pieces of meat (including beef, veal, lamb, pork and approved game meat) shall be heated to 165°F. Poultry, deli meat, processed poultry, meat and stuffing/meat products shall be heated to 165°F.	
007 Reheating	
Any potentially hazardous food cooked, cooled and reheated for hot holding or serving shall be heated to 165°F.	

002 Hand washing
Employees are required to wash their hands before beginning work, before handling food/equipment/utensils; as often as necessary, during food preparation, to remove soil and contamination; when switching from working with raw to ready-to-eat foods, after touching body parts; using the toilet, or any time when contamination may occur.

003 Improper hot/cold holding temperatures
Two or more food items cannot be stored in separate containers/compartments or open eggs held in temperatures between 60°F and 125°F, with exceptions.

004 Time as a control
Written procedures for retaining of raw food at temperatures to four hours is required; time control programs must be adhered to by staff.

005 Improper cooking method
All potentially hazardous food shall be **RAPIDLY** cooked from 135°F to 70°F within 2 hours, and then from 70°F to 41°F within 4 hours. Cooking shall be to one or more of the following methods: pressure cookers, shallow containers, separating food into smaller portions; adding ice as an ingredient; using ice bath; stirring frequently; using rapid cooking equipment; or using containers that facilitate heat transfer.

006 Improper cooking time/temperature
Temperature and time requirements required by the California Health and Safety Code. Comminuted meat, or any food containing comminuted meat, shall be heated to 150°F. Eggs and foods containing raw eggs, and single pieces of meat (including beef, veal, lamb, pork and approved game meat) shall be heated to 145°F. Poultry, comminuted poultry, stuffed, and stuffed meat/poultry shall be heated to 165°F.

007 Reheating food
Any potentially hazardous food cooked, cooled and reheated for hot holding or serving shall be heated to 165°F.

008 Food in poor condition; unsafe/defiled
Any food is defiled if it bears or contains any poisonous or deleterious substance that may render it impure or injurious to health.

009 Food contact surfaces not cleaned/sanitized
Food contact surfaces must be washed, rinsed and sanitized at adequate frequency; a sanitizer is to be provided in the 3-compartment sink or final rinse of the dishwasher; and food contact surfaces must be washed, rinsed and sanitized before change in use.

010 Food obtained from an unapproved source
All food obtained from sources other than approved sources.

011 Prohibited foods offered in licensed health care facilities/public and private schools
No raw or under-cooked food should be served at locations with highly susceptible populations. Examples of raw or under-cooked foods include unpasteurized juice, raw or under-cooked meat, etc.

012 No cold water
Food preparation establishment shall have an adequate, protected, pressurized, potable supply of hot water (120°F) and cold water shall be provided at all times.

013 Sewage/Wastewater control/inoperative
A food facility cannot operate if sewage backs up into the facility, if a grease trap over flows or clogs, or when there are no operable toilets. All liquid waste must drain to an approved wastewater treatment system.

014 Rodents/Seals/Fleas/Other Animals
Each food facility shall be kept free of vermin.

002 Hand washing
Employees are required to wash their hands before beginning work, before handling food/equipment/utility, as often as necessary, during food preparation, to remove soil and contamination; when switching from working with raw to ready-to-eat foods, after touching body parts, using the toilet, or any time when contamination may occur.

003 Improper hold cold holding temperature
Two or more food items cannot be stored in separate containers/compartments or packed eggs held in temperatures between 60°F and 125°F, with exceptions.

004 Time & temperature
Written procedures for restraining time of food at unsafe temperatures to four hours is required; time control programs must be adhered to by staff.

005 Improper cooling methods
All potentially hazardous food shall be RAPIDLY cooled from 135°F to 70°F within 2 hours, and then from 70°F to 41°F within 4 hours. Cooling shall be by one or more of the following methods: in a cold container; separating food into smaller portions; adding ice as an ingredient; using an ice bath; stirring frequently; using rapid cooling equipment; or using containers that facilitate heat transfer.

006 Improper cooking time/temperature
Food must be cooked to minimum temperatures required by the California Health and Safety Code. Commuted meat, or any food containing commuted meat, shall be heated to 165°F. Eggs and foods containing raw eggs, and single pieces of meat (including beef, veal, lamb, pork and approved game meat) shall be heated to 145°F. Poultry, commuted poultry, stuffed fish, and stuffed meat/poultry shall be heated to 165°F.

007 Reheating
Any potentially hazardous food cooked, cooled and reheated for hot holding or serving shall be heated to 165°F.

008 Food in poor condition; unsafe/defiled
Any food is adulterated if it bears or contains any poisonous or deleterious substance that may render it injurious to health.

009 Food contact surfaces not cleaned/disinfected
Food contact surfaces shall be washed and sanitized at adequate frequency; a sanitized food contact surface is one that has been washed and sanitized before change in use.

010 Food obtained from an unapproved source
All food must be obtained from an approved source.

011 Prohibited foods offered in licensed health care facilities/public and private schools
No raw or under-cooked food shall be served at locations with highly susceptible populations. Examples of raw or under-cooked foods include unpasteurized juice, raw or undercooked meat, etc.

012 No hot water
Food preparation establishment shall have an adequate, protected, pressurized, potable supply of hot water (120°F) and cold water shall be provided at all times.

013 Sewage/Wastewater disposal incomplete
A food facility cannot allow sewage to back up into the facility, if a grease trap over flows or clogs, or when there are no operable toilets. All liquid waste must drain to an approved sewer system or wastewater disposal system.

014 Rodents/Roaches/Fleas/Other Animals
Each food facility shall be kept free of vermin.

No information on how these relate to scores ...

Asked Questions Where do I go for treatment? 

SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH Network

Living **Records, Permits & Licensing** **Knowledge Sharing & Collaboration** **Diseases & Conditions** **Training**

Violations Food and Agriculture Neighborhoods and Housing Environmental Hazards

No information on how these relate to scores ...

Types

Environmental Health Inspector will calculate a score based on the violations risk to the public's health and safety.

Health and Safety Code (Part 7 - California Retail Food Code). Major violations mandate correction and/or closure of a facility.

occur during an inspection.

be excluded from the food facility/preparation of food. Gloves shall be worn employee shall commit any act that may contaminate or adulterate food, food-

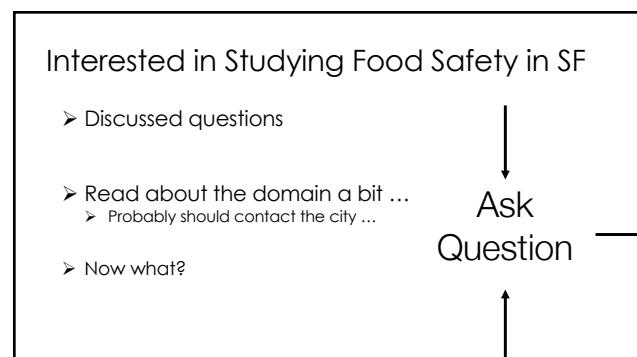
Dead Link 

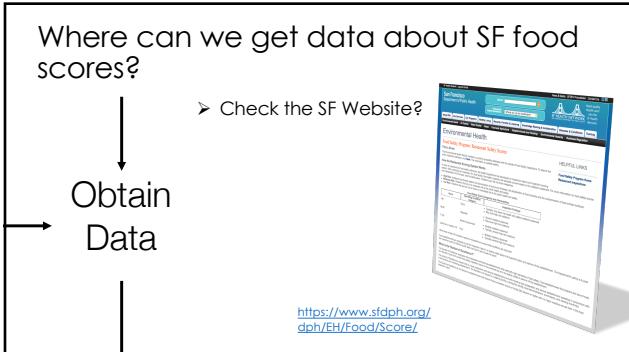
For beginning work; before handling food/equipment/utensils; as often as necessary, during food preparation, to remove soil with raw to ready-to-eat foods, after touching body parts; using the toilet; or any time when contamination may occur.

erate containers/compartments or pooled eggs held in temperatures between 60°F and 125°F, with exceptions.

HELPFUL LINKS

[Food Safety Program Home](#)
[Find a Score](#)
[Symbol of Excellence](#)
[Food Safety Inspections](#)
[California Health and Safety Code](#)
[Food Safety During a Power Outage](#)





Frequently Asked Questions Where do I go for treatment? ▾

About DPH Our Services Our Programs Healthy Living Records, Permits & Licensing Knowledge Sharing & Collaboration Environmental Health Air Quality Water Quality Noise Food and Agriculture Neighborhoods and Housing Environment

Environmental Health

Food Safety Program: Restaurant Safety Scores

Find a Score

The Environmental Health Section maintains a publicly accessible database with the results of food facility inspections. To search online inspection data, click here. The information is updated weekly.

How the Restaurant Scoring System Works

In order to implement the food safety scoring, the Health Department has developed an inspection report and inspection scoring system. After conducting an inspection of a food facility, the Health Inspector will calculate a score based on the violations observed and interpretation of the scores, see the table below. Violations can fall into three categories:

- High Risk: Violations that directly relate to the transmission of food borne illnesses, the adulteration of food products and the contamination of food.
- Moderate Risk: Violations that are of a moderate risk to the public health and safety.
- Low Risk: Violations that are low risk or have no immediate risk to the public health and safety.

Food Safety Score Categories and Interpretation		
Score	Operating Condition Category	Inspection Findings
>90	Good	• Typically, only lower-risk health and safety violations observed
80-90	Acceptable	• May have high-risk violations
<80	Poor	• Several violations observed

Environmental Health
City & County of San Francisco, Department of Public Health

Enter the business name or street address

If you are not sure of the name, in the blank space below type only few letters for a list of businesses whose name/street address contains those letters.

Search for: Yank Sing Display 10 Find

Business name	Street Address	Symbol of Excellence
YANK SING	49 STEVENSON ST	No
YANK SING RESTAURANT	101 SPEAR ST A-16	No

1 - 2

Issues?

Click the business name to see if there were any violations and information regarding those.

Environmental Health
City & County of San Francisco, Department of Public Health

YANK SING RESTAURANT

Inspection Findings

Inspection Date	Inspection Type	Score	Risk Category	Date Confirmed Corrected
25-Jun-2015	Reinspection/Follow-up	No Score required	-	-
19-Jun-2015	Routine - Unscheduled	82	-	-
19-Jun-2015	Reinspection/Follow-up	No Score required	-	-
14-Mar-2014	Routine - Unscheduled	98	-	-

Violation Type

Unreported or unrestricted ill employee with communicable disease
Contaminated or adulterated food
No thermometers or uncalibrated thermometers
Improper food storage

Risk Category

High Risk
Moderate Risk
Low Risk

Date Confirmed Corrected

19-JUN-15
19-JUN-15
19-JUN-15
19-JUN-15

1 - 8

