

### **DelftX:** OT.1x Observation theory: Estimating the Unknown

Help

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#### Assessment

Graded Assignment due Feb 8, 2017 17:30 IST

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# **Exercises: Model formulation**

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#### **Definitions and notation**

3/3 points (ungraded)

The model of observation equations (or mathematical model) consists of:

- A functional model
- A stochastic model
- The functional and stochastic model
- A first principles physical model

Which description fits best to 'the functional model'?

A model that describes a function

- 4. Best Linear Unbiased Estimation (BLUE)
- Pre-knowledgeMathematics
- MATLAB Learning Content

- A model that relates deterministic and stochastic variables
- A model that relates observations to observables
- ullet A model that relates parameters to observables ullet

The underline under a letter indicates:

- That this variable is a vector
- That this variable is deterministic
- That this variable is stochastic
- That this variable is a scalar

#### **Answer**

Correct: Correct

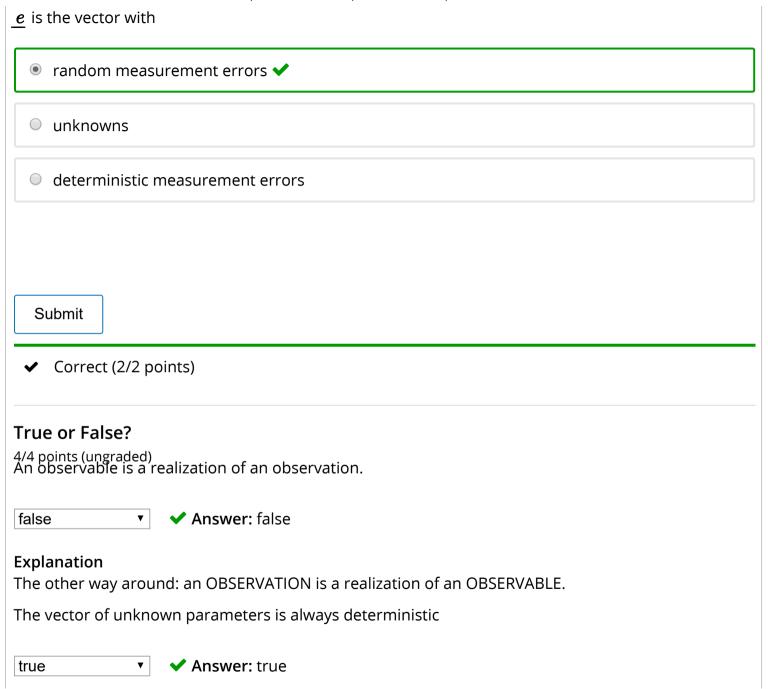
## **Explanation**

Note: the notation adopted here is not universal, for instance in other textbooks you will find other notation conventions.

Submit
✓ Correct (3/3 points)
Dimensions
4/4 points (ungraded) What is the dimension of $m{A}$ ?
lacksquare $m  imes n  imes$
$\circ$ $n \times 1$
$\circ$ $m \times 1$
○ 1×1
What is the dimension of $oldsymbol{y}$ ?
$\circ$ $m \times n$

$\circ$ $n \times 1$
○ 1×1
What is the dimension of $m{e}$ ?
$\circ$ $m \times n$
$0 n \times 1$
○ 1×1
What is the dimension of $m{Ax}$ ?
$\bigcirc$ $m \times n$
$\bigcirc$ $n \times 1$

lacksquare $m  imes 1  imes$	
○ 1×1	
Submit	
✓ Correct (4/4 points)	
What's in the vector? 2/2 points (ungraded) $y$ is the vector with	
<ul><li>observables</li></ul>	
unknown parameters	
● observations ✔	



	always has an error
true ▼	✓ Answer: true
Suppose we have a	vector of observations $[2.1 \ 1.8 \ 2.0 \ 2.1]^T$ . We will indicate this vector as $\underline{y}$ .
false ▼	✓ Answer: false
Explanation The observations ar	re given and deterministic, therefore notation $m{y}$ without underlining is used.
The observations at	e given and deterministic, therefore notation <b>y</b> without underliming is used.
Submit	
✓ Correct (4/4 po	pints)

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