

Engineering Analysis ENG 3420 Fall 2009

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Office: HEC 439 B

Office hours: Tu-Th 11:00-12:00

Lecture 14

- Last time:
 - Solving systems of linear equations (Chapter 9)
 - Graphical methods
 - Cramer's rule
 - Gauss elimination
- Today:
 - Discussion of pivoting
 - Tri-diagonal system solver
 - Examples
- Next Time
 - LU Factorization (Chapter 10)

```
function x=GaussNaive(A,b)
```

```
ExA=[A b];
```

```
[m,n]=size(A);
```

```
q=size(b);
```

```
if (m~=n)
```

```
    fprintf ('Error: input matrix is not square; n = %3.0f, m=%3.0f \n', n,m);
```

```
End
```

```
if (n~=q)
```

```
    fprintf ('Error: vector b has a different dimension than n; q = %2.0f \n', q);
```

```
end
```

```
n1=n+1;
```

```
for k=1:n-1
```

```
    for i=k+1:n
```

```
        factor=ExA(i,k)/ExA(k,k);
```

```
        ExA(i,k:n1)= ExA(i,k:n1)-factor*ExA(k,k:n1);
```

```
    End
```

```
End
```

```
x=zeros(n,1);
```

```
x(n)=ExA(n,n1)/ExA(n,n);
```

```
for i=n-1:-1:1
```

```
    x(i) = (ExA(i,n1)-ExA(i,i+1:n)*x(i+1:n))/ExA(i,i);
```

```
end
```